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PREFACE

Global Academic Research Institute is proud to present GARI SUMMER MULTIDISCIPLINARY SYMPOSIUM 2023 which is a series of successful research symposium. The Inaugural Session and the Technical Sessions were conducted in 11th August 2023 Global Academic Research Institute in Colombo, Sri Lanka. The conference was organized into different disciplines which empirical, conceptual and methodological papers were received from academics, practitioners and public policy makers were accepted paying austere attention to the academic standards of the papers. To maintain consistency, authors were prescribed to follow the academic writing format of the GARI Publishers. The reviewing process was apparently transparent where papers underwent a double blinded review process by eminent subject specialists in respective areas. Thus, refereed full papers selected to be presented at the conference were published here. We do not assume any responsibility for any errors or omissions in the research papers which rests solely with the authors.

Special thank goes to Key note addresses & Co-chairs made by Dr. P. Vijitha - (Senior Lecturer & Director / CEO, University College of Jaffna, Unit of Siddha Medicine, Faculty of applied Science, Trincomalee Campus, Eastern University Sri Lanka), Dr. Mahesh. T.S (Professor and Hod, Dept. of Dravyaguna (Ayurvedic Pharmacology), Prasanna College of Ayurveda, Laila Belthangady, India), Dr. Manoharan Kesavan (Lecturer, Department of Construction Technology, Faculty of Technology, Wayamba University of Sri Lanka). The organizing committee special Appreciation Online Research Publications Partner NLSL's National Digital Library and Repository in Sri Lanka, an International Academic Affiliation with Jagadguru Kripalu University - India, Department of Community Medicine, Mysore Medical College and Research Institute - India, International Federation for Fitness Health, Physical Education & Iron Games - Saudi Arabia, Australasian Institute of Ayurvedic Studies - Australia, Kathmandu School of Law – Nepal, Noble School of Business, India.

Journal Partner as GARI Publishers and GARI International Journal of Multidisciplinary Research, all other GARI affiliated academic partners, Further the support given by GARI Tours as Travel partner, Official Creative Partner Sameera Artco & MICE official Partner Sri Lanka Convention Bureau. The conference committee expresses deep gratitude to the panel of reviewers for the priceless service rendered. Finally, the committee extends sincere thanks to the presenters and participants for the valuable contribution and active participation.

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Our Association aims to devote itself to the fields of art, architecture, urban planning to defend visual ecology and the harmony of colors in the environment. The different fields and domains concerned, the theoretical and methodological development as well as the practical bases of environmental projects, are at the center of the professional interest of the activities of the Association CEC Couleur-Espace-Culture.

National Digital Library and Repository – Sri Lanka

The National Library is mainly research and a reference library and it is the main library and information Centre in Sri Lanka. It intends to provide library resources as well as information to all Sri Lankans through the National Library. Powers and responsibilities of the National Library were clearly spelled out for the first time and this was a fulfillment of a long-felt need. It has become a herculean task to organize and introduce this new institution to the country and to the general public.

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Jagadguru Shree Kripaluji Maharaj envisioned a university that not only provides quality education but also aims at all-round personality development of the students, turning them into leaders in their chosen fields. The faculty at JKU are experts in their respective fields, with an

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Kathmandu School of Law, established in 2000 AD as an affiliate of Purbanchal University, is a community-based, non-profit academic institution that upholds its unrestrained commitment for a pragmatic, research-based and community responsive legal education in the country. It was conceptualized within the ambit of non-profit movement dedicated to serve the need of an academically sound and functionally feasible legal education in Nepal.

Australasian Institute of Ayurvedic Studies – Australia

The Australasian Institute of Ayurvedic Studies is synonymous with quality and authentic education in Ayurveda. The Institute was founded in 1999 in Auckland, New Zealand and is proud to be the only training Institute in Australasia offering recognized Ayurvedic qualifications in both Australia and New Zealand.

International Federation for Fitness Health, Physical Education & Iron Games - Saudi Arabia

IFFPHPEIG was established in year 1995. It is one of the largest upcoming federations around the world. The Federation was established by the Honorary President Dr. Kaukab Azeem

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DIFFERENT THERAPEUTIC EFFECTS OF DASHĀNGALEPA IN DISEASE MANAGEMENT IN AYURVEDA: A SURVEY STUDY

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ABSTRACT

Dashangalepa is an Ayurvedic medicinal powder that is a useful medicine used by Ayurveda and traditional physicians in Sri Lanka for a wide range of ailments. This famous formula can be introduced as a poly-herbal medicine consisting of ten ingredients. Shirisha, Yashtimadhu, Tuvarala, Swethachandana, Ela, Jatamansa, Haridra, Daruharidra, Kushta, Hrivera belong to it. Nowadays Dashangalepa is the most popular lepa used with tamarind leaf juice, clarified butter (ghee) etc. for many ailments. However, in which disease conditions Dashangalepa can be used, which additional liquids can be used and what the effect is, the research problem was an intriguing question. Therefore, the main objective of this survey was to survey the effectiveness of Dashangalepa with different liquids from a practical point of view. This information has been collected from 100 Ayurveda physicians in different regions of Sri Lanka. A questionnaire was presented to them to give their knowledge and experience about Dashangalepa. The primary data were analyzed by SPSS software and the data were presented with bar graphs, pie charts and tables. Dashangalepa has already been scientifically proven to be non-toxic and is rich in anti-inflammatory, analgesic, astringent effects and anti-inflammatory properties. The survey report revealed that 95% of Ayurvedic physicians are inclined to prescribe Dashangalepa to their patients. 51% of doctors used Dashangalepa as an anti-inflammatory drug for skin diseases. The remaining 49% of doctors are used for joint diseases, toxic conditions, gynecological diseases, orthopedic diseases and varicose veins. This survey revealed that physicians practically usage of Dashangalepa not only for arthritis and skin diseases but also for gynecological diseases, varicose veins and other toxic conditions too.

Keywords: Dashangalepa, skin rashes, inflammation, Toxicity

INTRODUCTION

Dashangalepa is a versatile medicine used for many diseases. In Ayurveda, it is used for countless diseases. Research done by various researchers has revealed that Dashangalepa is a non-toxic medicine. Medicines belonging to it include Shirisha, Yashtimadhu, Tagara, Swetha Chandana, Ela, Jatamansi, Haridra, Daruharidra, Kushta, and Usheera. Dashangalepa is used for various diseases with various additives. It has been confirmed by literature investigations and clinical research that Dashangalepa has many properties. Meanwhile, Dashangalepa has been proven to have anti-inflammatory, antiviral, antibacterial, antimicrobial, antifungal, strong analgesic, and healing effects.

(Pargaonkar, A. S., Jibkate, B. R. ,Umate, P., 2021) Previous research has confirmed that using Dashangalepa along with Arka Patra Sweda for amavata reduces joint pain and swelling in the patient. It is mentioned that the ushna, ruksha and vathanashaka properties of this medicine are its basis. (Dissanayaka, K. G .C. & Tiwari, S. K., 2007) Also, it has been recorded that when Dashangalepa was used with lukewarm sesame oil for Vidradhi, all the cardinal features of inflammation with Vidradhi were reduced within the first three days. (Harish, D. A. G. A. et al, 2022) Moreover, a literature investigation conducted with the aim of developing a skin-friendly hand wash from the medicinal properties of Dashangalepa has revealed that Dashangalepa has antiviral, antibacterial, antimicrobial, and antifungal effects, and therefore can be used for diseases such as visarpa (Herpes), visha, visphota (blistering skin disease), dushtavrana (wound), kushta (skin disease), jwara (fever), and shotha (inflammation) etc. The medicines contained in Dashangalepa have katu, tikta and kashaya rasa, laghu, ruksha, teekshana guna, kattu vipaka, and both ushna and sheetha viryas. Due to this, tikta, kashaya, madhura rasa pacify pitta dosha and rakta dhatu. Madhura rasa pacifies vata doshas and tikta, katu, kashaya rasa pacifies kapa doshas. Also, tikta and madhura rasa have Vishagna and Kushtagna properties. (Pargaonkar, A. S., Jibkate, B. R. ,Umate, P., 2021) This proves that Dashangalepa can be used for many diseases. However, decided to conduct this survey using current Sri Lankan Ayurveda doctors and traditional doctors to find out for which diseases Dashangalepa is used and what results are obtained from them.

METHODOLOGY

A group of 100 registered Ayurvedic doctors, traditional doctors, and lecturers engaged in the field of Ayurvedic medicine in Sri Lanka were selected and given a proposed questionnaire through an online Google form. This survey was conducted regarding the application of Dashangalepa, its preparation and the result they obtained from it. The cross-sectional survey method was used. In the data analysis, the data were analyzed using SPSS software and the information was presented by means of tables, Bar charts, Pie charts etc. In the survey, doctors who are not registered with the Ayurveda Medical Council were not used in the survey. This survey was conducted with the aim of exploring information related to the use of Dashangalepa and the results obtained from it.

RESULTS AND DISCUSSION

Considering the medicinal properties of Dashangalepa, it was confirmed in the literature investigation that various mixtures can be prepared and used for many diseases. However, this survey showed that the majority of doctors confidently use Dashangalepa only for joint diseases, skin diseases and cosmetic purposes. It was clear from the data investigation that many patients have been successfully treated with ghee and tamarind leaf puree for joint diseases and obtained results. It was discovered that rose water and honey are used for cosmetics purposes. In addition to these common mixtures, there were doctors who also used clay of termites, juice of neem leaves, juice of aththana leaves, and juice of Moringa bark. The expected cure was also obtained from it. In addition to that, Sarshapadi oil was also applied. Considering the persuasive of Dashangalepa,

96.5% of doctors have achieved persuasive results. And this survey confirmed that this drug has been

successfully used for a long period of 23, 15 years.

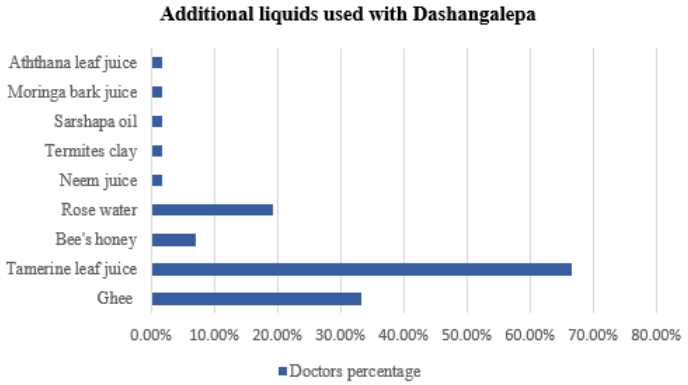

Figure 1 Additional liquids used with Dashangalepa

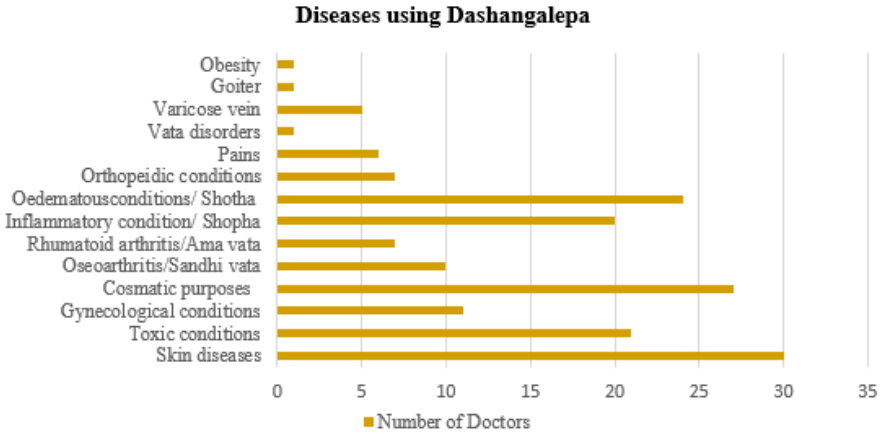

Figure 2 Diseases using Dashangalepa

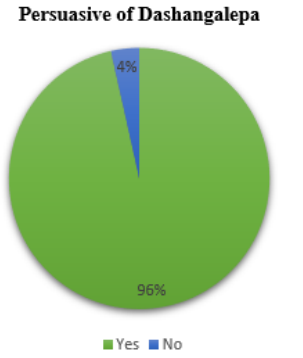

Figure 3 Persuasive of *Dashangalepa*

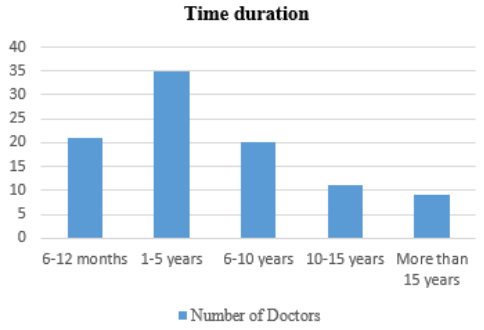

Figure 4 Time duration

CONCLUSION

According to the experimental data shown in the survey, the majority of physicians use Dashangalepa for skin diseases and joint diseases. The tamarind leaf juice and ghee are widely used. Apart from this, attana leaf juice, termites' clay, neem juice and moringa bark juice are used. A persuasive rate of 96.5% has been achieved. Accordingly, it is confirmed that Dashangalepa is used among Ayurveda doctors in Sri Lanka as a very successful poly-herbal medicine. Therefore, as a by-product of this research, cosmetic ointments, body wash, soap, etc. can be manufactured by using Dashangalepa based on the needs of contemporary society. It makes easier for patients to use medicines and for doctors to treat them.

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SYSTEMATIC REVIEW ON THE THERAPEUTIC EFFICACY OF ARANYA TULASI MULAN KASHAYA HERBALS IN THE MANAGEMENT OF ALZHEIMER'S DISEASE

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INTRODUCTION

Alzheimer's disease is a neurodegenerative condition characterized by cognitive decline and memory loss. It is caused by the formation of neurofibrillary tangles and amyloid plaques. The global incidence of Alzheimer's disease is projected to increase significantly, with a majority of cases attributed to heritable factors. Biomarkers like amyloid β and phosphorylated tau have been identified through advanced techniques, aiding in the understanding of the disease's pathogenesis. While there is no cure for Alzheimer's disease, pharmacological interventions have shown promise in managing its symptoms. Anti-amyloid β compounds, anti-tau therapies, and anti-inflammatory agents have been used to alleviate symptoms. Ayurvedic medicine, known as "Mano Roga," incorporates medicinal herbs with anti-inflammatory, antioxidant, and cholinesterase inhibition effects, providing potential relief for Alzheimer's disease symptoms. Further research is necessary to explore the efficacy and safety of these herbal treatments.The "Aranya tulasi mulan kashaya "is a polyherbal formulation comprising Ocimum sanctum (thulasi), Evolvulus alsinoides (vishnukranthi), and Zingiber officinale (mahoshadam). Primarily, this kashaya is employed in the treatment of communicable diseases like malaria. The aim of this research is to conduct a pharmacological review of the aforementioned herbals to assess their potential in managing Alzheimer's disease.

Objectives are to find out the phytochemicals, anti-inflammatory effect, antioxidant effects and affects to the nerve system.

METHODOLOGY

This study was conducted as a systematic literature review, adhering to the PRISMA model. A total of 156 articles were initially considered for inclusion in this study. By using pub med and google scholar. After careful evaluation, 37 articles were selected for analysis. Non-English articles, veterinary research studies, and articles lacking clear information were excluded from the final selection process. The articles chosen for this review span the years 2000 to 2023.

RESULTS

Phytochemical analysis

Ethanolic extract of the Evolvulus alsinoides was find out with a phytochemicals such as 2,3,4-trihydroxy-3- methyl butyl, 1,3-di-O-caffeoyl quinic acid methyl ester, 2-C-methyl erythritol, kaempferol-3-O-ß-glucopyranoside, and quecetine-3-O-ß-glucopyranoside (Singh,

2008). The stem and leaves of Ocimum sanctum (holy basil) are rich in various phytochemicals, including saponins, flavonoids, triterpenoids, and tannins. Notably, the phytochemicals Rosmarinic acid, propanoic acid, apigenin, and phenolic compounds have been associated with its anti-inflammatory effects (Kelm, 2000). Mostly rhizome of zingiber officinale contain phenolic compound like 6 gingeroles, 8-gingeroles, 6shagole 6-paradole. ethyl acetate extracts - zingiberene . (23.71%; 31.70%) and β-sesquiphellandrene(15.08%; 16.64%), curcumene (16.47%; 14.42%), (Verma,et al., 2021)

Antioxidant effect

The antioxidant effects of ethyl acetate, ethanolic, and hydroalcoholic extracts of Evolvulus alsinoides were evaluated using the DPPH (2,2-diphenyl-1-picrylhydrazyl) method, with ascorbic acid as a reference. Among the extracts, the ethanolic extract (EEA) and hydroalcoholic extract (HAEA) exhibited the highest antioxidant activity, with EEA showing an antioxidant effect of 196.08±2.16 µg/mL and HAEA showing an effect of 307.66±1.72 µg/mL. Additionally, the ethanolic extract of Evolvulus alsinoides demonstrated a significant free radical scavenging effect using the ABTS (2,2'-azinobis-(3-ethylbenzothiazoline-6-sulfonic acid)) method. (Yadav, et al, 2018). Positive antioxidant effects were observed when testing the ethanolic, methanolic, and aqueous extracts of Ocimum sanctum (holy basil)

The aqueous, methanolic, and essential oil extracts of Zingiber officinale (ginger) were found to possess significant antioxidant effects. This was determined through testing using various methods such as DPPH (2,2-diphenyl-1-picrylhydrazyl), ABTS (2,2'-azino-bis(3-ethylbenzothiazoline-6-sulfonic acid)), FRAP (ferric reducing antioxidant power), and superoxide scavenging assays. (Zammel et al, 2021)

Anti-inflammatory effect

The ethanolic extract of Evolvulus alsinoides demonstrated significant in vivo anti-inflammatory effects in a rat model. In vitro experiments showed its ability to reduce hemolysis and inhibit pro-inflammatory cytokines. (TNF-α, IL-6, and IL-8) (Gomathi et al, 2015) Additionally, a 70% methanolic leaf extract of Evolvulus alsinoides exhibited inhibition of pro-inflammatory cytokines (IL1β, IL-6, and TNF-α) in rats with inflammation. The extract also showed anti-inflammatory and antioxidant effects, as well as a reduction in Acetylcholinesterase levels in the brain. These findings suggest the potential of Evolvulus alsinoides as an anti-inflammatory agent. (Yadav, et al, 2015). Linoleic acid of Ocimum sanctum possesses anti-inflammatory effects by blocking cyclooxygenase and lipoxygenase pathways, and Furthermore, additional experiments have revealed that inhibiting the production of IL-6 and TNF-α. (Yildiz et al, 2021). Gingeroles, the primary phytochemicals found in Zingiber officinale (ginger), were tested in vitro to determine their anti-inflammatory effects. The results showed an inhibitory effect on the production of inflammatory cytokines such as IL-6, IL-1β, and TNF-α.

Effect for nerve system

The alcoholic extract of Evolvulus alsinoides exhibited superior nootropic effects in rats, as determined by the Elevated Plus Maze and Jumping Box tests. Another study investigated the effects of ethanol, ethyl acetate, and aqueous extracts of Evolvulus alsinoides on learning and memory in rodents. The extracts reversed amnesia, demonstrated nootropic activity, and exhibited potent

memory enhancement effects. Additionally, Evolvulus alsinoides demonstrated nootropic and anxiolytic activity, as well as anti-CNS-depressant effects. Maximum memory enhancement activity was observed at a dose level of 200mg/kg. (Rawat et al, 2011). O. sanctum L. preparation good for the cognitive disorders such as dementia and Alzheimer's disease. By inhibiting Amyloid beta peptide (Aβ) (Nandini et al, 2022). Zingiber officinale (ginger) has been found to exhibit effects that can reduce the activity of acetylcholinesterase (AChE), an enzyme involved in the breakdown of acetylcholine. By inhibiting AChE, ginger can increase the levels of acetylcholine in the synapses, which is associated with improved cognitive function and the alleviation of cognitive impairments. (Bui et al, 2017)

DISCUSSION

The exact underlying causes of Alzheimer's disease are not yet fully understood. However, research has shown that the formation of β-amyloid protein and abnormal tau protein, as well as oxidative stress and inflammation, play significant roles in neuronal degeneration and the development of the disease. Evidence suggests that Ocimum sanctum (holy basil) can reduce the formation of β-amyloid protein, which helps prevent synaptic loss in the hippocampal area and cortex. Additionally, neurotransmitters such as acetylcholine, serotonin, and norepinephrine are affected by the degeneration of neurons and contribute to cognitive impairments. Modern therapeutic approaches often target these neurotransmitters to alleviate Alzheimer's symptoms. Zingiber officinale (ginger) has been found to increase acetylcholine levels by inhibiting the enzyme acetylcholinesterase.

Furthermore, cytokines like IL-6, TNF-α, and COX are known to promote the production of β-amyloid protein, leading to neuronal loss and dementia. The herbal ingredients of Aranya tulasi mulan Kashaya have demonstrated inhibitory effects on these cytokines, helping to prevent nerve degeneration. Accumulation of free radicals, which increases with age, contributes to neuronal degeneration and the development of Alzheimer's disease. The herbal ingredients discussed in this article have shown robust antioxidant effects, supporting their potential in reducing the progression of Alzheimer's disease. It is important to note that while these findings suggest potential benefits of these herbal ingredients, further research is necessary to validate their effectiveness and explore their optimal therapeutic applications in Alzheimer's disease.

CONCLUSION

In conclusion, the polyherbal formulation Aranya tulasi mulan Kashaya, consisting of Ocimum sanctum, Evolvulus alsinoides, and Zingiber officinale, holds promise for managing Alzheimer's disease. The herbals exhibit diverse pharmacological effects, including anti-inflammatory, antioxidant, and neuroprotective properties. Phytochemical analysis revealed the presence of bioactive compounds such as gingeroles and rosmarinic acid, which contribute to these effects. Evolvulus alsinoides demonstrated significant anti-inflammatory and antioxidant activities, while Zingiber officinale showed potential in increasing acetylcholine levels. Furthermore, the herbals exhibited effects on the nerve system, with Evolvulus alsinoides displaying nootropic and anxiolytic activities. The inhibition of cytokines like IL-6 and TNF-α, reduction in β-amyloid protein formation, and antioxidant properties further support their potential in preventing nerve degeneration

and cognitive impairments. However, more research is needed to determine optimal dosages and treatment durations to fully exploit the therapeutic potential of these herbals in Alzheimer's disease management.

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THE LITERATURE REVIEW ON SRI LANKAN BASNA PREPARATIONS AS A MULTIVALENT SOCIAL HEALTH PROMOTER BY ACTING BOTH CURING DISEASES AND TOLERATING THE NUTRITIONAL INCOMPETENCIES AMONG SOCIETY

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ABSTRACT

Sri Lanka has unique medical system which goes beyond 2000 years ago and this own medical scheme is considered as the Sinhala wedakama or traditional medical system, so the Basnas are the specific traditional methodically prepared formulas of co-mingled with therapeutically high valuable raw materials to obtain accurate clinical values. Thus this literature review was aimed to gather information about various traditional Basna preparations according to Sri Lankan traditional medical books viz.Thal pathé piliyam book series, Déshīya Chikitsā Samgrahaya,Sinhala Yógarathnākaraya ,Yógārṇavaya and Sārārtha Samgrahaya ,and the Sri Lankan Ayurveda Pharmacopeia in order on a reviewing the simultaneous therapeutic actions of curing the disease and re-establishing the body nutritional balance ,so according to the literary sources, the Basna of researched were Puhul Basna ,Rā Basna ,Thóra Basna ,Hā Basna etc.,apart from that Déshiya Chikitsā Samgrahaya has mentioned the names of 19 Basnas, the ingredients, preparation methods and indications whereas the other literary sources viz Thal Pathé Piliyama book series has mentioned more than 25 of Basna preparations .Cumulatively ,in these books ,the Basna preparations have been mentioned with different drug lists along with separated preparation methods to each per single therapeutic formula Basna . By literal way, the Basna can be used for Grahani róga (Improper digestion), Pāndu (Anemia), Kāmalā (Jaundice), Udara róga (Abdominal disorders), Aróchaka (Anorexia), Unmāda (Mental disorders) etc. Also ,the Basna preperations can ensure the transformation of the active therapeutic properties of the ingredients to the solvents by using different techniques based on their ingredients and indications,According to literature analysis depending upon the Ayurvedic Dravya guṇa theories ,the speciality of the every formula was that the Basnas have been prepared not only to cure diseases but also to enhance the nutritional value of selected groups of being a well-establish safe guard .So, as a matter of facts of gather on Basna, from the review it can be concluded that Basna are very effective, unique processes and must be broadly utilized in tolerating the nutritional incompetencies among society as a health promotor by being not only in treating to the diseases condition.

Key words: Basna,nutritional enhancement , health promotor, nutritional incompetencies, raw materials

RELATIONSHIP OF POLYCYSTIC OVARIAN SYNDROME AND OBESITY: A SURVEY

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ABSTRACT

Obesity has been recognized as a common feature of polycystic ovary syndrome (PCOS). Polycystic ovary syndrome is an important example of a metabolic disorder associated with insulin resistance, whose manifestations include cardio metabolic risk and whose effects are greatly amplified by obesity. The survey's goal was to investigate any association between polycystic ovarian syndrome and obesity. Through the use of an online questionnaire, data was gathered. For a set amount of time, university girls were permitted to answer the pre prepared questionnaire based on their menstrual cycle, some characteristics. Secondary data associated with gynecological diseases with the help of scientific journals, electronic media. This questionnaire received responses from 404 respondents (n = 404) from various university students in Sri Lanka. Based on the data, 77.9% of those interviewed reported being absent with PCOS, while 22.1% indicated being present with PCOS. 37% of absent individuals with PCOS were overweight, 12% were underweight, and 51% had an absent PCOS. 55% of those with PCOS were overweight, 30% were underweight, and 15% were not experiencing PCOS. According to girls with PCOS who are not in the optimal range of BMI, Among these girls, considering menstrual cycle irregularities, 73% of girls have menstrual cycles delayed by two months, 62% have menstrual cycles delayed by 3 months, 42% have menstrual cycles delayed 4 months, 39% have menstrual cycles delayed by 5 months, and 22% have menstrual cycles delayed by 6 months. Based on other data, 66% of girls who are suffering from oily skin and acne, 73% of rapid weight gain, 37% of hair loss from the head, and 19% of hirsutism were shown. The main cause of PCOS is dysfunctional insulin signaling in obese women. A critical role of abnormal insulin signaling is central to weight loss and other factors affecting insulin sensitivity (e.g., improved sleep quality and adequate sleep) in effectively treating women with POCS. Clarify their role.

Keywords: BMI, Hirsutism, Obesity, Polycystic ovarian syndrome, Underweight

INTRODUCTION

World Health Organization (WHO) data indicate that an estimated 116 million women (3.4%) are affected by polycystic ovarian syndrome (PCOS) worldwide. Nowadays, it has been found that there are more gynaecological disorders among women. As well as excessive obesity among women in today's society. PCOS is also seen among women. Therefore, the hypothesis was to find out whether there is PCOS in obese girls. Polycystic ovary syndrome is a genetic condition, exacerbated by obesity. PCOS is the most common endocrine disorder experienced by girls of childbearing age; therefore, it is a condition in which the ovaries produce an abnormal amount of androgen, male

sex hormones that are usually present in women in small quantities and describe the numerous small cysts (fluid-filled sacs) that develop in the ovaries. PCOS has the critical characteristics of hyperandrogenism, reproductive dysfunction, and metabolic dysfunction. According to the modern concept, obesity and overweight are medical conditions that make it a global epidemic. Once, obesity and overweight were considered a high-income country problem, but now they are spreading in low- and middle-income countries as well. According to the WHO definition, obesity is defined as an abnormal and excessive accumulation of fat, which poses a health risk. A body mass index (BMI) greater than 25 is considered excess weight, and more than 30 is obese.

Hyperinsulinemia is caused by insulin resistance and obesity. And thereby deregulate the neuroendocrine system. It leads to an imbalance in the hypothalamic-pituitary-ovarian axis and an increase in gonadotropin-releasing hormone (GnRH), stimulating the pituitary for excessive production of LH hormone. Excess LH stimulates ovarian androgen production. Fat tissues (adipose tissue) release oestrogen in obese individuals. Having a high percentage of body fat can cause elevated levels of oestrogen. Due to the increase in the production of estrogen hormone by the adrenal gland, the stimulation of LH hormone also increases. It leads to androgen production and is called hyperandrogenism. Clinical signs of hirsutism, acne, and androgenic alopecia. The reproductive characteristics of PCOS are mainly composed of oligomenorrhea and impaired fertility. Underlying this clinical evidence is the abnormal development of the ovarian follicle, leading to uncommon or missing ovulation. Hyperinsulinemia in POCS contributes to the early luteinization of granular cells. This combination, along with the increased production of ovarian androgens, leads to the subsequent cessation of cell proliferation and follicle growth. In addition, the small antral follicles in PCOS and the production of steroids switch to a preponderance of progesterone. These intricate underlying processes result in PCOS, which triggers the growth of follicles at the pre-antral phase. Consequently, it leads to oligoanovulation, oligomenorrhea, and diminished fertility.

Most obesity-related comorbidities are associated with cardiometabolic dysfunction. This includes the development of conditions like type 2 diabetes mellitus (T2D), hypertension, and other features of the metabolic syndrome. Obesity-related malignancies, such as endometrial carcinoma, are also associated with underlying cardiometabolic dysfunction, insulin resistance, and compensatory hyperinsulinemia. Polycystic ovary syndrome is an important example of a metabolic disorder, associated with insulin resistance, whose manifestations include cardiometabolic risk and whose effects are greatly amplified by obesity. The symptoms of PCOS, missed periods, irregular periods, ovaries that are large or have many cysts, Excess body hair, including the chest, stomach, and back (hirsutism), weight gain, especially around the abdomen, acne or oily skin, male patterns of baldness or thinned hair, infertility, small pieces of excess skin on the neck or armpits, dark or thick skin patches on the back of the neck, in the armpits, and under the breasts

METHODOLOGY

The survey's goal was to investigate any association between polycystic ovarian syndrome and obesity. Through the use of an online questionnaire, data was gathered. For a set amount of time, university girls were permitted to answer the pre prepared questionnaire based on their menstrual cycle, some

characteristics. Girls were given the opportunity to respond to short-answered and multiple-choice questions. Such as about their irregular menstrual cycle and duration, hirsutism, rapid weight gain, hair loss from the head, oily skin, or acne. Secondary data associated with gynaecological diseases with the help of scientific journals, electronic media, research articles, and internet sources.

RESULTS AND DISCUSSION

This questionnaire received responses from 404 respondents (n = 404) from various university students in Sri Lanka. Based on the data, 77.9% of those interviewed reported being absent with PCOS, while 22.1% indicated being present with PCOS. 37% of absent individuals with PCOS were overweight, 12% were underweight, and 51% had an absent PCOS. 55% of those with PCOS were overweight, 30% were underweight, and 15% were not experiencing PCOS. According to girls with PCOS who are not in the optimal range of BMI, even if obese people do not show PCOS through this questionnaire, there is a possibility that they may have PCOS without realizing it. Among these girls, considering menstrual cycle irregularities, 73% of girls have menstrual cycles delayed by two months, 62% have menstrual cycles delayed by 3 months, 42% have menstrual cycles delayed 4 months, 39% have menstrual cycles delayed by 5 months, and 22% have menstrual cycles delayed by 6 months. Based on other data, 66% of girls who are suffering from oily skin and acne, 73% of rapid weight gain, 37% of hair loss from the head, and 19% of hirsutism were shown.

Figure 1 - Irregular menstrual period

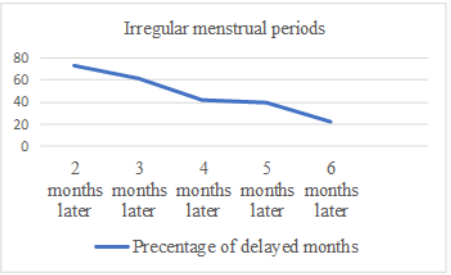


Figure 2 - Percentage of present PCOS and Absent PCOS

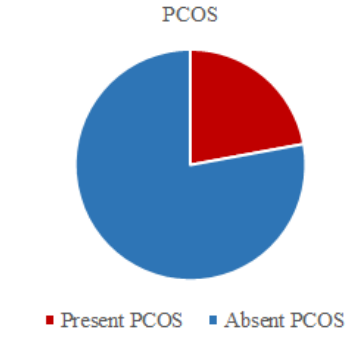


Figure 3 - Percentage of PCOS present

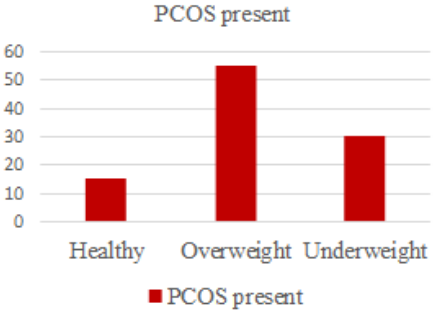


Figure 4 - Percentage of PCOS absent

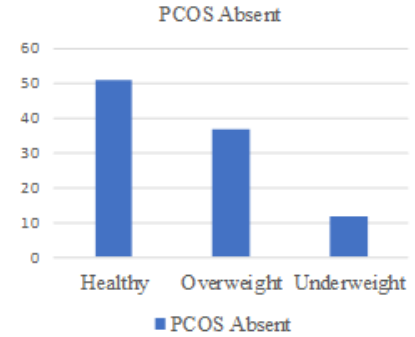
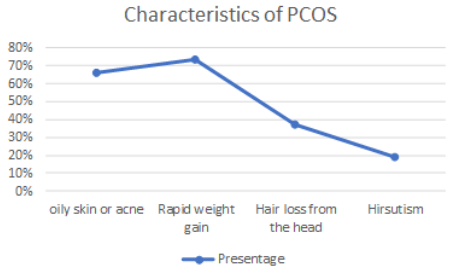


Figure 5 - Percentage of characteristics of PCOS



The hormones leptin, insulin, oestrogens, androgens and growth hormone influence our appetite, metabolism and body fat distribution. People who are obese have hormone levels that encourage the accumulation of body fat. Hormones associates with PCOS are Androgens (like testosterone and androstenedione). Luteinizing hormone (LH). Follicle-stimulating hormone (FSH). polycystic ovary syndrome (PCOS) is a hormonal imbalance that occurs when your ovaries (the organ that produces and releases eggs) create excess hormones. If you have PCOS, your ovaries produce unusually high levels of hormones called androgens. This causes your reproductive hormones to become imbalanced. These hormones are one of the reasons show these characteristics.

CONCLUSION

This survey showed that the majority of women with an optimal BMI were absent of PCOS, as well as the majority of women with a non-optimal BMI (obesity) who were present with PCOS. The deregulation of steroid production pathway enzymes and the hyperplasia of theca cells in the ovaries of affected women are two factors that lead to the rise in androgens. As a result of higher androgens, the hypothalamic-pituitary axis experiences less negative feedback, which increases the frequency of GnRH pulses. An increase in LH causes theca cells in the ovaries to proliferate quickly, which then increases their capacity to make steroids and, as a result, increases the production of androgen. In this way, due to the hyperinsulinemia caused by obesity, the production of androgens increases. Two board strategies can be used to prevent and manage PCOS in the future. first to alter our genes by epigenetic modification. The second is altering our behavior through the effects of lifestyle modification, including dietary adjustments, exercise, attention to the quantity and quality of sleep, and the use of mindfulness practices. There is still much work to be done in developing and successfully implementing modifications to women's lives so they can effectively lose and maintain body weight, as well as serve as a foundation for the development of emotional wellbeing in our modern-day, hectic, stressful, distracting, and obesogenic environment. The main cause of PCOS is dysfunctional insulin signaling in obese women. A critical role of abnormal insulin signaling is central to weight loss and other factors affecting insulin sensitivity (e.g., improved sleep quality and adequate sleep) in effectively treating women with POCS. Clarify their role.

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CLINICAL EVALUATION OF IMPROVEMENT OF MOTOR FUNCTIONS AFTER STROKE (HEMIPLEGIA) WITH LINE OF TREATMENT- A CASE STUDY

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ABSTRACT

Paralysis is complete or partial loss of function especially when involving the motor or sensory function in a part of the body. It mainly categorized according to the affected location of the body including monoplegia, hemiplegia, paraplegia and quadriplegia. Stroke, brain or spinal cord tumors, infections (meningitis, encephalitis, polio) and autoimmune diseases (Guillain-Barré syndrome) are considered as causative factors of paralysis. The aim of this study is to evaluate the improvement of motor function after stroke with relevant treatment protocol. The present case study was a single case study carried out within 48 days and conducted at ward no 15 in National Ayurvedic Teaching Hospital Borella, Sri Lanka. Reported case was a 73-year-old male patient with weakness of both left upper limb and lower limb associated with numbness (Hemiplegia). Motor function assessment according to clinical assessment criteria, and it was used to evaluate the effects of treatments in every two days. Within 48 days of treatment, 20 types of preparation of drugs were used as internal and external application including decoctions (Kashaya), vatee, kalka, churna, gritha and taila. After this treatment, motor function has been improved significantly as percentage of 85. According to analyzed data, study prove that this treatment protocol has provided better improvement of motor functions subjected to Pakshagata. Further studies using different cases are recommended to conduct to ensure the result of this research.

Key words: Pakshagata, stroke, treatment, motor function

APPROACH OF AYURVEDA TO NON-COMMUNICABLE DISEASES - A CRITICAL REVIEW

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ABSTRACT

Non communicable diseases (NCDs) are the most dangerous disease category in this era as it is a silent killer. Over 60% of the population die per year due to NCDs and prevalance of SouthEast Asia about 80% of the population. About 82% of all these deaths were due to cardiovascular diseases, cancers, respiratory diseases and diabetes mellitus. For this study data was gathered through Ayurveda classical texts and articles taken from electronic databases including PubMed, Google scholar, Science Direct. With reference to the data lifestyle changes, food habits, mental stress are the leading causes for this. In Ayurveda Acharya Sushruta mentioned the person who is with normalcy of dosha (biological humors), agni (digestive power), dhatu (tissues), mala (wastes) and pleasent state of atma (soul), indriya (sensory and motor organs) and manas (mind) called healthy person. From this definition, apart from normal stage of dosha, dhatu, agni and mala, it is important to maintain mental and spiritual well being to prevent from NCDs. As per Ayurveda there are many procedures including panchakarma, kshudra karma as well as yoga and pranayama to maintain good mental state of individuals to prevent from these NCDs. This study helps to make aware the society, the power of Ayurveda in the prevention of NCDs.

Key words: Non communicable diseases, Ayurveda, panchakarma

TUMERIC AND BEE HONEY IN GESTATIONAL HYPERTENSION MANAGEMENT AYURVEDIC VIEW- REVIEW

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ABSTRACT

Maternal hypertensive disorders during pregnancy may have an impact on foetal development and the health of offspring in later life. Hypertensive disorders of pregnancy are a leading cause maternal morbidity and mortality. According to ayurveda Turmeric and bee honey both used for gestational hypertension. Both are having property of antioxidant, anti-inflammatory and anti cancer effects. Turmeric has curcumin it exhibits ameliorating effects in ischemic stroke. Honey has significant effect of decreasing the blood pressure. To study the turmeric and honey in the management of gestational hypertensive. According to previous studies turmeric and honey showed administration of the curcumin induce the strong vasorelaxation effect. Honey decreased the systolic blood pressure significantly. Turmeric and honey both have antihypertensive effect. Both can be used in the management of the gestational hypertension.

Keywords: Gestational hypertension, Turmeric, Honey, antihypertensive

INTRODUCTION

Pregnancy related hypertension is high blood pressure that begins after 20weeks of pregnancy and ends shortly after baby is born. Gestational hypertension is different than other types of hypertensions because it starts in the second half of pregnancy and grew away after child birth (Renata,2022). Pre-eclampsia is one of the main causes of medical complication of pregnancy and it is main cause o perinatal mortality and morbidity. Gestational hypertension is increased blood pressure during the pregnancy without proteinuria which will be returned by 12th week postpartum visit. Gestational hypertension progress towards preeclampsia and associated factor (Yemane et al,2021). Hyper tension in pregnancy as blood pressure >140/90mmHg.There is variability in threshold for initiating antihypertensive treatment attributable uncertainty about maternal benefits of lowering BP and the potential foetal risk from medication-induced reductions in utero-placental circulation and utero-placental circulation (Vesana et al, 2022).

Ayurvedic management of Turmeric with honey is very useful in management of gestational hyper tension. Curcumin is polyphenolic component of Curcuma longa. L widely known as turmeric, bright yellow powder. Curcumin accounts 75-80% of curcuminoids. It has anti-inflammatory, antioxidant and anticancer effects. Curcumin decreases AT1R expression in arteries by disturbing SP1/AT1R DNA binding thereby decreasing AT1R mediated vasoconstriction and inhibiting the progress of HTN(Raha et al, 2021).

Honey though constituted by mainly sugar it has been reported cardioprotective and it has recommended to reduce the blood level of some macro molecules that are linked to an increased risk of heart

disease. It has been reported that systolic and diastolic blood pressure were reduced by honey inhalation in hypertensive conditions (Esther at al, 2014).

Objective

To review effect of turmeric and honey mixture in the management of gestational hypertension in pregnancy mothers.

METHODOLOGY

Secondary data collections are including inclusion criteria of ayurvedic authentic text books. Studies were limited to research studies published between 2015 and 2022 and in English.

RESULTS

According to ayurveda Tumeric (Curcuma longa)

हरिद्रा काञ्चनी पीता निशाऽऽख्या वरवर्णिनी। कृमिघ्नी हलदी योषित्प्रिया हट्टविलासिनी[1] ॥१९६॥
हरिद्रा कटुका तिक्ता रूक्षोष्णा कफपित्तनुत्। वर्ण्या त्वग्दोषमेहास्रशोथपाण्डुव्रणापहा ॥१९७॥

Bha.Pra edition of 2010: Verse 196-197, page no-111

According to Bhavaprakash Nighantu it has states haridra, kanchani, peeta, nishakhya, varvarini, krimighana, haldi, yoshitripya and hatvilasini all are synonyms of curcuma. This herb is pungent and bitter in taste, rough, hot in potency and used to pacify kapha and pitta dosha. It is used to improve skin tone and used in skin disorders, diabetes, bleeding disorders, inflammation and anemia and used in wound healing.

हरिद्रा कटुका तिक्ता रूक्षोष्णा कफवातहा। वण्यां त्वग्दोषमेहाम्रशोधपाण्डुवणापहा॥

According to ayurveda Turmeric balances all three doshas. It has bitter taste (Tikta rasa), astringent energetic effect (Virya)) and post digestive effect (Vipaka) is pungent and heating. Beneficial for rasa dhathu and raktha dhathu.It brings soothing and cooling quality also. It naturally enables the agni and it helps to reduce excess kapha and ama. It lekhana guna pacify the heart related conditions and hypertension condition.

According to modern Turmeric (Curcuma longa)

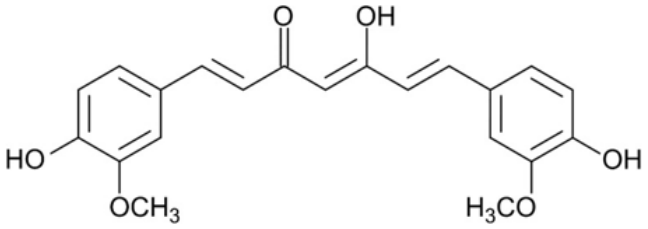

Fig 1: Chemical structure of curcumin

Curcuma longa or commonly known as turmeric which originates from south Indian and is extensively cultivate tropical areas of South asia. It belongs to ginger family, also known Zingiberaceae family. It is an aromatic perennial herbal plant. Its tuberous rhizome has been widely used in medicinal, culinary and dyeing purposes. Curcumin extracted has shown potent pharmacological properties such as antioxidant, anti-inflammatory, antimicrobial, anticarcinogenic, hypoglycemic and hepatoprotective.

Author	Study Model	Constituent/Dose	Study Duration	BP Measurement	Finding
Nakmareong et al, 2015	Male Spargue-Dawley rats treated with L-NAME(50mg/kg/day)for 3 weeks	THC 50mg/kg/day, 100mg/kg/day for 2 weeks	5 weeks	Tail cuff Intra-arterial Left femoral artery	↓SBP ↓Arterial BP dose-Dependently (SBP, DBP, MAP)
Boonal et al, 2015	2K-1C Male Sprague- Dawley rats	Curcumin 50mg/kg/day , 100 mg/kg/day	6 weeks	Tail cuff Intra-arterial femoral artery	↓SBP ↓Arterial BP dose-Dependently (SBP, DBP, MAP)
Akinyemi et al. (2016)	male Wistar rats treated with L-NAME (40 mg/kg/day) for 10 days	turmeric aqueous extract 4% for 14 days (p.o.)	24 days	Tail-cuff	↓ SBP
Li et al. (2016)	30-week-old male Wistar-Kyoto rats and SHR	demethoxycurcumin 10 mg/kg/day (i.p.)	3 weeks	Tail-cuff	↓ SBP in SHR
Xia et al. (2016)	adult male albino Wistar rats	curcumin 60 mg/kg/day 120 mg/kg/day (i.p.)	4 weeks	Intra-arterial: Carotid artery Microvascular pressure:	↓ arterial BP (dose- and time-dependent) NA

				Servo-nulling pressure system in brain	
Yao et al. (2016)	8-week-old male C57BI/6J mice treated with Ang II (490 ng/min/kg)	curcumin 300 mg/kg/day (p.o.)	1 week	Tail-cuff	↓ SBP, DBP

Table 1: Effect of Curcuma longa(CL) and its constituents on blood pressure(BP) in animal model (Source: Leong X. F, The Spice for Hypertension: Protective Role of Curcuma Longa. Biomed Pharmacol J 2018;11(4)

Honey according to ayurveda

Rasa (taste): Madhura (sweet)Kashay (astringent)
Virya (potency): Ushna (hot) / some scholars define as a sheet (Cold)
Vipaka (post digestive effect): Madhura (sweet).
|| laghu-swadu-ruksha-grahi-vilekhanam ||
Guna: Laghu- light
Vishad- Clear
Rooksha -Dryness
Grahi – Support / hold
Lekhanam – scraping
Effect on dosha: Balances Kapha & Pitta

चक्षुष्य छेदी त्रुटश्लेष्म विषहिदमास्त्रपित्तनूत।
मेहकुष्टकृमिछर्दिश्वासकासातीसारजित ||
व्रणशोधन संधान रोपण वातलम मधु ||

Modern view-Honey

Honey contains 20.06% water, 71.41% of carbohydrates, 0.38 proteins, small quantity of formic acid, all 22 amino acids, Vitamins-A, B, C, D, E, Calcium, Magnesium and Potassium. Experimental studies showed that it has antiseptic, antimicrobial, antipyretic, anti-inflammatory, antiallergic, antitoxic, sedative, laxative, anti anemic, antioxidant, healing and cleansing, moisturizing and blood purifying. It promotes rehydration, easily digestible and stimulates immunity (Ediriweera and Premarathna, 2012).

DISCUSSION

Hypertensive disorder of pregnancy is major complication in pregnancy, which contributes to significant maternal and fetal morbidity and mortality. They are preventable in early detection. According to ayurvedic approach etiopathogenesis of this disease progresses involvement of other dosha. Dushya are hridya, dash dhamanya, sira, rasarkatvaha srotas, manovaha srotas, ras and raktha dhathu. So it should be treated with vaata shamana, pittashamana, hridya, rakatashamana medicines (Pande, 2021).

Amir et al, (2019) conducted a systematic review and meta-analysis with Curcumin on blood pressure. They have conducted randomized clinical trials to assess the effect of Curcumin. Totally 11 studies comprising 734 participants were eligible and included in meta-analysis revealed subgroup analysis revealed a significant reduction only in Systolic blood pressure levels but not diastolic blood pressure. Esther et al, (2014) conducted randomly selected hypertensive 50 male patients. The blood pressure and heart rate were examined three consecutive times at 1minute interval between measurements. After baseline recording each was given 20ml honey. Blood pressure was measured by 15minutes, 30minutes and 60minute of administration. Honey decreased the systolic blood pressure after 15,30 and 60minutes of honey intake. Romero-silva et al, (2014) reported that honey reduced the increased blood pressure in carbohydrate induced obese rats and study in spontaneously hypertensive rats reported.

In daily routine consumption of turmeric powder 50mg-100mg with honey helps to manage the pregnancy induced hypertension and prevent the complication.

CONCLUSION

Ayurveda explains appropriate lifestyle and diet management is called ahar and vihar for maintaining the homeostasis and preventing hypertension. Proper medication as per ayurvedic guidelines will definitely control the gestational hypertension. Turmeric and bee honey both have antihypertensive effect and absence of hazardous effects which is very important in view of global acceptance of ayurveda.

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GALACTAGOGUE HERBS IN ENHANCING LACTATION: A COMPREHENSIVE REVIEW

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ABSTRACT

Newborns should ingest breast milk most often as it provides unparalleled advantages in both nutritional and non-nutritional means. Oligolactation is a most ubiquitous worry among lactating mothers. Dietary changes and using specific galactagogue medications are beneficial to treat this condition. Galactagogue medications are used by lactating mothers to ensure optimum milk production. Ayurveda has numerous references to galactagogue herbs. The objective of this study is to identify the most common galactagogue herbs and to analyze their pharmacological properties and chemical compositions and mode of action. Data collecting included Ayurveda classics, a comprehensive search of electronic databases, including PubMed, Scopus, Google Scholar and Embase, for relevant studies published in English from 2010 to 2021 focusing on galactagogue herbs, galactagogue mechanisms and lactation. Results revealed that several commonly used herbs showed favourable results in increasing lactation. It included Asparagus racemosus, Trigonella foenum, Oryza sativa Linn, Vetiveria zizanioides, and Foeniculum vulgare are commonly used. Asparagus racemosus is rich in steroidal saponins, shatavarins promote estrogenic activity thus it promotes mammary gland development and enhances milk production. Trigonella foenum contains diosgenin, which acts as estrogen in the body. These compounds stimulate milk production by increasing the weight of mammary glands. The rich nutritive capacity, bulk-enhancing activity of Oryza sativa Linn support milk production also noticeably contribute to the weight of mammary glands. Vetiveria zizanioides stimulate the blood flow to the mammary glands, elevating the milk flow and contributing to the weight of mammary glands. Foeniculum vulgare has anethole which enriches estrogenic properties. It contributes to increasing the prolactin level and is also helpful in the shrinkage of tubuloalveolar tissue thus ensuring continued flow of milk. The results of the study may help to preserve knowledge about the use of galactagogue herbs. Further clinical study is important to assess the effect and efficacy of these drugs.

Keywords: Breast milk, Galactagogue mechanisms, Galactagogue herbs

A LITERETURE INVESTIGETION OF ROLE OF UTTARA BASTI IN THE MANAGMENT OF FEMALE INFERTILITY (VANDHYA)

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ABSTRACT

Introduction: According to Ayurveda, Infertility is known as Vandhya and it is considered as disease in Yoni (reproductive system). Infertility is defined as the incapacity to conceive after a year or more of regular sexual intercourse with no contraceptive measures taken. In contrast, the fertile population is defined as those who do become pregnant after some reasonable time of regular sexual intercourse. Infertility may be due to male of female factors causes of fertility in women include ovarian factors, tubal factors, cervical and uterine factors, age related factors, PCOS, endometriosis. Uttar basti is considered as one of the best Panchakanma procedures defined in Ayurvedic Authentic books. Aim: Aim of this study was detailed description of Uttar Basti in mentioned ancient time and an elaborative discussion on valuable points regarding Uttar basti to confirm the effectiveness of applying Uttara basti treatment for Female Infertility.

METHODOLOGY

This research was conducted as a conceptual study based on the literature available in Ayurveda classical texts and scientific evidence shown in previously published research. Primary data was collected from main three texts which are Charaka Samhita, Susrutha Samhita, Astangaharda Samhita and secondary data was collected from scientific research journals published in database of PubMed, Research gate, Scopus, Google scholar following the PRISMA model.

RESULTS

The medicines administered through urethral route help to balance nerve conduction of pelvic region (Apana vata) thereby leading to cure or relief from the respective disorders. The Uttara basti has a cleaning action especially, purgative action of Uttara basti in the urinary bladder and other genital passages, the process of urination and sexual functions will be re-established. The organs have been clean and sterile and get rid of swelling, irritation, inactivity, and contamination. Further, nutritional in function and improve the blood passage, nerve conduction and immunity of the organs.

DISCUSSION

Thus, Uttar basti is a minor operative Ayurvedic procedure, which can be performed depending upon the purpose to achieve. Considering all the description given in classics, it is a broad umbrella which can cover all the diseases of urogenital tract as well as reproductive system. According to the findings Uttara Basti is a nonsurgical and important Panchakarma procedure commonly used

and capable of performing all sorts of action like Shodana, Samana and Vrunhana. Indication of Uttara Basti given in the authentic books gynecological disorders like menometrorrhagia (Asrigdhara) Menorrhagia (Rakta pradara) Amenorrhea (Artava adarshana) Dysmenorrhea (Kashtartava) Disorders of uterus (Garbhashaya gata roga) It is a special and highly admired procedure in Ayurveda treatment for sterility. Further literature analysis, all collected data concluded that Uttara Basti restores the normal endometrium, and the normal functions of cilia breaks the tubo-peritoneal adhesions of fallopian tubes. According to the actions of ingredients, it helps follicular maturity of the ovaries as well as ovulation. Further, Uttara Basti promotes rejuvenation and achieve fertility.

CONCLUSION

This literature investigation underscores the importance of exploring complementary and alternative therapies, such as Uttara Basti, in the context of female infertility management. While the evidence is promising, more extensive research is needed to establish the therapy's efficacy definitively. Integrating traditional wisdom with modern scientific methods may pave the way for holistic approaches to female reproductive health, benefiting countless women facing challenges related to infertility. The findings from this investigation can serve as a valuable foundation for future studies and contribute to the evolving landscape of female infertility treatments. Can be removed the reasons of infertility by using Uttar basti.

Keywords: Uttara basti, Gynecology, Infertility, Ayurveda, Vandhya

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EVALUATION OF VATA (FICUS BENGHALENSIS) IN PUMSAVANA KARMA; A SCIENTIFIC REVIEW ON THE IMPACT ON SELECTIVE SEX DETERMINATION

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ABSTRACT

Population growth requires a balanced approach to population control. The ratio between the two genders in society should be maintained. Pumsavana karma is a method for selective sex determination and is highlighted in Ayurveda. Authentic Ayurvedic texts mention various herb which is essential for Pumsavana karma. This study aims to evaluate the impact of Vata (Ficus benghalensis) on Pumsavana Karma for selective sex determination. A systematic literature review was done using the meta-analysis (PRISMA 2020 model) review method. A literature search from 2000 to 2023 was identified through databases including PubMed, Science Direct, Google Scholar, and Research Gate. Pumsavana karma act on pre and post-conception. These processes can take place either through the oral route or through Nasya karma (errhine therapy) Due to the similarities between the semen and F. benghelensis, it will increase the quality and the quantity of the semen. Calcium, Magnesium like macronutrients are essential for the process of spermatogenesis. Plant parts of F. benghelensis provide a good source of Magnesium, Calcium. During Nasya karma, it acts on the neuro-endocrine level to have a baby with the intended sex. But its mechanism remained under investigation up to now. Mullerian duct inhibiting factor and testosterone are the two known substances that promote male gonadal development. Ficus benghelensis is found to have a potential inhibitor of 5∝-reductase and it may affect adversely. The study reveals that F. benghalensis is a potent drug in selective sex determination that affect pre and post-conception. Future research should investigate its impact on the anterior pituitary gland and its action on the growing embryo.

Keywords; Pumsavana Samskara, Ficus benghelensis, selective sex differentiation

INTRODUCTION

During times of population growth, it is crucial to have a planned approach to population control that maintains a balanced population ratio. While there are no known in vitro methods to selectively change the sex of a fetus, the modern technique of amniocentesis has resulted in an increase in female foeticide. Researchers are looking for safer methods of population control, and one such method is Pumsavana karma, which is a procedure used for selective sex determination during pre and post-conception. Ayurveda scriptures mention numerous herbs, including Vata, Lakshmana, Gouradanda apamarga, Jeevaka, Rshabhaka, and Sairyeyaka, that are used in various modalities for performing Pumsavana karma. Vata, which is a plant commonly found in Sri Lanka, is essential for Pumsavana karma

due to its efficacy in selective sex determination and availability. The goal of this study is to scientifically evaluate the impacts of Vata (Ficus benghalensis) in Pumsavana Karma in terms of selective sex determination.

METHODOLOGY

A systematic literature review was done using the meta-analysis (PRISMA 2020 model) review method from 2000 to 2023 through databases including PubMed, Science Direct, Google Scholar, and Research Gate using the keywords " Pumsavana Karma", "Selective sex determination and Ficus benghalensis" and "Vata and Pumsavana Karma". The selection criteria included published reviewed articles, concept papers, e-books, scientific articles and animal studies whereas articles published in languages other than English, and incomplete articles were excluded. After screening 97 studies, we selected 35 articles that met our criteria for the current study. We removed any duplicates before proceeding.

RESULTS

Semen and F. benghalensis shared their properties in common according to Ayurveda as given below in Table 1

	Semen	F. benghalensis
Rasa (Taste)	Madura rasa (Sweet)	Madura Rasa (Sweet)
Guna (Properties)	Guru (Heaviness)	Guru (Heaviness)
Veerya (Potency)	Sheetha (Cold potency)	Sheetha (Cold potency)

Table 1. Comparison of properties of semen vs F. benghalensis

Nasya Karma technique is an effective method used in Pumsavana Samskara. The following Figure 1 is the procedure for Nasya Karma as prescribed by Acharya Susruta.

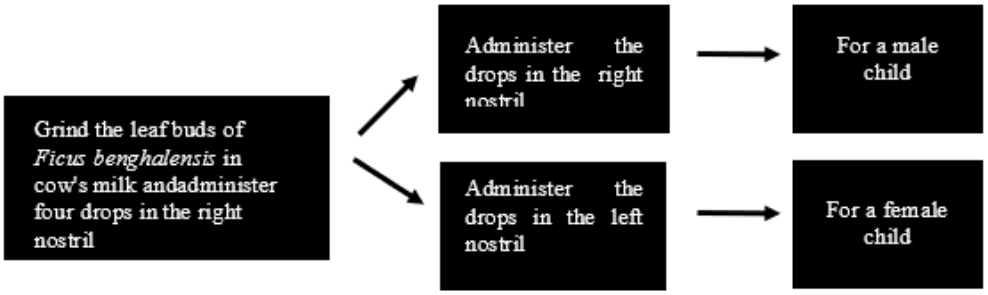

Figure 1. Nasya Karma for selective sex determination by Susrutha Acharya

Nasya karma acts on the hypothalamus-pituitary axis to ensure its action on the endocrine system to get selective sex in the progeny.

The gonadal development occurs after 8 weeks of conception. For male differentiation to occur, two substances are necessary; the Mullerian duct inhibiting factor and androgens. This class of steroids, which includes testosterone and di-hydro testosterone, plays an important role in the process. When these hormones are detected by receptors, they enter the cell and trigger RNA synthesis, which leads to the production of certain proteins and ultimately causes differentiation. The Mullerian duct inhibiting factor and testosterone are the two known substances that promote male gonadal development. (Hetal & Sharma, 2016) Ficus benghalensis is found to have a potential inhibitor of 5∝-reductase and its mechanism remained known up to now. (Iltaf et al., 2021) accordingly, Testosterone is converted into dihydrotestosterone by steroid 5 alpha-reductase in the urogenital tract, and this conversion is necessary for the differentiation of the prostate and male external genitalia. Depending upon the available literature inhibitor of 5∝-reductase can result in either underdeveloped male genitalia or fully developed external genitalia. (Kumar & Barboza-Meca, 2022)

DISCUSSION

The way oral medication is administered can have a direct impact on the body's metabolism and tissue quality. In Ayurveda, semen is referred to as Shukra and is known for its properties of being heavy (Guru) and having cold potency (Sheetha Veerya). Drugs that share similar qualities with Shukra, such as being heavy, cold, and having spermatogenetic properties (Shukrala), can increase semen density. This can result in a higher likelihood of male children and influence genetic predominance during fertilization. Vata, also known as Ficus benghalensis, shares qualities with semen, including heaviness and cold potency, as per Kaiyadeva Nighantu. Therefore, it may have a positive impact on having male progeny. Studies have shown that a diet rich in calcium and magnesium can increase the chances of having male children. According to Susruta, to promote the birth of a male child, one should grind the leaf buds of Ficus benghalensis in cow's milk and administer four drops in the right nostril. For a female child, administer the drops in the left nostril on the Pushya Star day by a male. Vriddha Vagbhatta explains in Asthanga Sangraha that the medication passed through the blood vessels reaches the head and acts as Shiro Virechana, cleansing the minute channels. Then these drugs will act on the brain. New research has revealed the impact of Nasya karma on the neuro-endocrine level. The peripheral olfactory nerves, which act as chemoreceptors, have a close relationship with the brain. Terminal nerves run parallel to the olfactory nerves and are connected to the limbic system of the brain, which includes the Hypothalamus. The limbic system and hypothalamus are responsible for controlling endocrine secretions, and the hypothalamus integrates the functions of the endocrine and nervous systems. It has direct nervous connections with the posterior lobe of the pituitary and indirect connections with the anterior lobe through portal vessels. In animals, stimulating this part of the hypothalamus electrically can lead to secretion in the anterior pituitary.(Agrawal & Rani, 2014) The action of F. benghalensis buds on the anterior pituitary, and the sex differentiation based on the type of nostrils has been not yet evaluated. After the gonadal development the application of F. benghalensis remained doubtable as it will lead to hermaphroditism according to the available data. So this should be further clarified.

CONCLUSION

The current study has found that F. benghalensis is a potent drug that can influence selective sex determination. Sex differentiation can be affected by pre and post-conception factors. According to the contemperory study pre-conception method are more safer. Future research should investigate the effect of F. benghalensis bud on the anterior pituitary gland, depending on which nostril it is administered through, and analyze the chemical composition of all parts of F. benghalensis to determine their impact on selective sex determination.

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CHALLENGES FACED IN DEVELOPING WRITING SKILLS OF THE UNDERGRADUATES IN ENGLISH AS A SECOND LANGUAGE

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ABSTRACT

The purpose of this study is to explore the challenges encountered by the undergraduate students of the Faculty of Management Studies and Commerce, University of Jaffna, in developing their writing skills in English as a second language. The aim of this research is to identify the specific challenges faced by these students and explore the factors that contribute to these challenges. By understanding these challenges, ELT practitioners can develop effective strategies to support ESL undergraduates in improving their writing skills. In order to find out the challenges, the study was conducted among the undergraduates of the Faculty employing a qualitative research design, incorporating interviews, surveys, and analysis of written compositions. A diverse sample of ESL undergraduate students is selected to ensure a comprehensive understanding of the challenges faced. Data analysis techniques, such as thematic coding and content analysis, are utilized to identify common themes and patterns. The findings reveal several challenges in developing writing skills among ESL undergraduates. Language proficiency emerges as a central obstacle, with difficulties in vocabulary, grammar, and syntax affecting the clarity and coherence of their writing. Cultural differences in writing conventions and styles also pose challenges, as students may struggle to meet the expectations of English academic writing. Based on the findings, this research suggests several strategies to address these challenges. These include providing targeted language instruction, promoting cultural awareness, offering ample immersion and practice opportunities, guiding students through the writing process, providing timely feedback and support, encouraging risk-taking and creativity, and integrating writing across the curriculum. By implementing these strategies, ELT practitioners can support the undergraduates in overcoming the challenges they face in developing their writing skills in ESL.

Key words: developing writing skills, challenges, academic performance, English language proficiency

RESEARCH ON THE CONSTRUCTION OF THE VIRTUAL FAMILY IN WECHAT SPACE FOR RURAL LEFT-BEHIND CHILDREN

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ABSTRACT

At present, the maintenance and development of rural left-behind family relationships are facing challenges, while WeChat builds a "virtual family in WeChat space" for rural left-behind children, making it possible for their family relationships to develop well. This study used questionnaires to investigate the use of WeChat by family members of left-behind children in rural areas for communication and interaction, as well as the family functions of virtual families. The results show that the current construction subjects of the virtual family in WeChat space of left-behind children in rural areas have different reasons to participate. The construction of the virtual family in WeChat space for left-behind children in rural areas can be carried out from three dimensions: time, space and content. The current construction status of the virtual family in WeChat space for left-behind children in rural areas is as follows: in terms of the time dimension, the subjects participating in the space construction communicate in WeChat for about 1 hour per day; in terms of the spatial dimension, the virtual family in WeChat space is mainly chat room space; in terms of the content dimension, the content involved in the virtual family in WeChat space is mainly about daily life, work and learning topics; overall, the virtual family in WeChat space for rural left-behind children has been basically constructed and formed, and its functions have been realized to a certain extent.

Keywords: WeChat, Left-behind children, Virtual family, Space construction

WEB VISIBILITY SOUTH AFRICAN PUBLIC MUSEUMS IN THE DIGITAL AGE

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ABSTRACT

In South Africa, the Department of Arts and Culture, Sport and Recreation funds museums together with public and private partnerships to promote and preserve the country's rich and varied cultural heritage. Access to these important information sources has been historically through physical contact with artifacts and collections. The popularity of accessing and communicating digital information via the web have persuaded many information service providers to invest in resources, technology, and organizational structures to successfully achieve online visibility (McGovern, 2014). While other information centers have long started creating awareness of their services through digital platforms, existing research has not clearly discussed how public museums market their services using digital platforms. The purpose of this study was to assess web visibility of South African public museums. Focusing on their websites, the objectives of the study were: (i) to analyze web visibility of public museums; (ii) to review user friendliness; (iii) to review interactive functions, and (iv) to analyze social media links on public museum websites. To gain these insights, a quantitative research methodology, along with a deductive research approach was adopted. A quantitative content analysis was applied across all South African museum websites to capture the desirable data. The preliminary results reveal that some public museums do not have accessible websites, most websites vary in design features. It is recommended that various resources, technology, and organizational structures are acquired to improve the web visibility of public museums. It is further recommended that a central indigenous knowledge database and website is developed and linked to all relevant information services in South Africa.

Keywords: Web visibility, indigenous knowledge, public museums, information services

EMBRACING ELEGANCE THROUGH SUSTAINABILITY: EXPLORING NATURAL DYE IN SUSTAINABLE EVENINGWEAR

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ABSTRACT

The research project titled "Embracing Elegance through Sustainability" explores sustainable fashion, with a specific focus on natural dyes as an eco-friendly alternative to synthetic dyes prevalent in fast fashion. The primary objective is to create elegant eveningwear that prioritizes sustainability, targeting high-end female customers aged 25 to 35 from Sri Lanka's Western province. The core concept, "Connect with nature through clothes dyed naturally," centres on using natural fabrics like silk and cotton, integrating various artistic techniques such as ruffles, flounces, shirring, dip dye, and block printing to craft visually appealing and sustainable garments. Trims and closures are thoughtfully designed to align with sustainability principles. Extensive research, surveys, and data gathering were conducted to understand sustainable fashion practices and the preferences of the target customer segment. Inspired by the captivating Iris orchid flower, the project resulted in an exquisite collection that embodies elegance and sustainability. Rigorous experimentation ensured the feasibility of proposed designs and the successful application of natural dyes on different fabrics, all adhering to sustainable principles and minimizing environmental impact. The project culminated in a distinct collection of eveningwear, presented under the eco-friendly brand "Ecolors," epitomizing sustainable fashion and catering to environmentally conscious consumers. This research project showcases the potential of natural dyes in creating elegant and environmentally responsible eveningwear, encouraging a positive shift towards sustainability in the fashion industry. By targeting discerning customers and emphasizing the essence of sustainability and elegance, this project contributes significantly to the field of sustainable fashion, fostering a more conscious and eco-friendly approach to clothing design and production.

Key words: Sustainable fashion, Natural dye, Eveningwear

INTRODUCTION

In today's fast-paced world, the fashion industry has adopted the approach of fast fashion to cater to instant communication, technological advancements, and intense competition. However, this convenience comes at a significant cost, with evidence pointing to major drawbacks and harmful effects. Fast fashion's detrimental impact includes water pollution, excessive water consumption, microfiber pollution in oceans, waste accumulation, chemical dependency, greenhouse gas emissions, soil degradation, rainforest destruction, labour exploitation, and textile allergies. Textile dyeing and treatment, being the secondlargest polluter globally after oil, contribute to approximately 20% of global clean water pollution (Prinelli, 2020). To address these pressing concerns, an increasing number of sustainable fashion labels have emerged, aiming to alleviate environmental and health issues. Fast

fashion's rapid production cycles encourage overconsumption and disposability, leading to excessive waste generation. As a result, landfills overflow with discarded clothing, taking hundreds of years to decompose. The mass production of synthetic fabrics and chemical dyes releases harmful pollutants into water bodies, causing severe water pollution (Fiber2Fashion, 2012). Furthermore, the fashion industry's greenhouse gas emissions, mainly from textile production, contribute significantly to climate change and its devastating consequences. In stark contrast to fast fashion, the slow fashion movement emphasizes sustainability, ethical practices, and environmental consciousness. One crucial aspect of slow fashion is the utilization of natural dyes derived from plant sources, such as silk and cotton, which offer numerous benefits to both the environment and consumers. Natural dyes offer significant environmental benefits, making them a sustainable alternative to chemical dyes in the fashion industry. Unlike their chemical counterparts, natural dyes are derived from plant, animal, or mineral sources and have minimal impact on the environment. Natural dyes are biodegradable, which means they break down naturally over time without leaving harmful residues. This characteristic prevents the accumulation of toxic substances in soil and water bodies, minimizing environmental pollution (Dyes and Pigments, 2018). Chemical dyeing processes often result in the discharge of toxic substances into waterways, leading to water pollution and posing a threat to aquatic life. In contrast, natural dyes do not contain harmful chemicals, reducing the pollution load on water resources (Rengasamy and Kannah, 2017). The production of natural dyes typically requires less energy compared to chemical dyes, as they can be derived from readily available plant sources with simple extraction methods. This reduced energy consumption contributes to lowering the fashion industry's carbon footprint (Choudhury et al., 2015). Many natural dye sources are obtained from plants that can be sustainably cultivated and harvested without depleting natural resources. Promoting the cultivation of dye-yielding plants encourages sustainable agricultural practices (Ghosh and Chatterjee, 2018). Textile workers involved in the dyeing process are exposed to various chemicals in traditional dyeing methods. Adopting natural dyes eliminates this health hazard and creates safer working conditions (Kaur et al., 2019). Incorporating natural dyes into fashion production contributes to a cleaner and more sustainable industry, safeguarding the environment for future generations.

METHODOLOGY

Throughout this project, various researches and experiments were conducted using both primary and secondary research methods. The first step involved customer research to understand their preferences, requirements, buying behaviour, lifestyles, values, and norms. Questionnaires were used to efficiently conduct the survey. Additionally, different fabrics were experimented with to determine their suitability for the selected garment category, which is eveningwear. Acceptable dye sources and mordants as binding agents were also identified through these experiments. Furthermore, extensive research on fashion trends was carried out to stay updated on the latest trends, upcoming colours, and silhouette ideas. Based on the findings from these researches and experiments, fabric manipulation techniques and suitable silhouette designs were explored and tried out.

To align with the project's sustainability concept, experiments were conducted on

sustainable closures for the garments. The aim was to replace synthetic and plastic closures such as zippers and buttons with eco-friendly alternatives like coconut shell buttons, fabric ties, and hooks made of fabrics. Additionally, various dyeing techniques and block printing methods, along with suitable binding agents for block printing, were tested. Laboratory testing, including colourfastness to crocking, washing, and light exposure, was conducted to evaluate the fabric and dye performance. These comprehensive researches and experiments have contributed to the development of environmentally friendly and fashionable evening wear garments.

RESULT

A captivating evening wear collection was curated, embracing the core values of sustainability through the exquisite art of natural dyeing, catering to discerning high-end customers in Sri Lanka aged between 25 to 35, primarily hailing from the Western Province. This unique collection not only exudes elegance and sophistication but also serves as a powerful testament to the significance of sustainable fashion within the dynamic Fashion Industry.

The following shows the final outcome of the design-based research.

Figure 1 Final Collection

DISCUSSION

The treatment of fibers with mordants is a crucial step in the natural dyeing process, particularly for cellulose and protein-based fibers. Cellulose fibers like cotton, linen, hemp, bamboo, and rayon require proper preparation to enhance their affinity towards natural dyes, as they have a lower attraction compared to protein fibers like silk, wool, leather, and mohair. Mordants play a vital role in improving the absorption and colour fastness of natural dyes on these fibers.For cellulose fibers, a common pre-treatment involves the use of tannin followed by an aluminum metal salt, often alum. The tannin helps in preparing the fibers for the mordanting process, while the aluminum salt acts as a mordant to bind the dye molecules with the cellulose fibers (Ates, 2015). In this research, the outer fabric selected for the evening wear garments was natural silk. Silk was chosen for its luxurious and lustrous appearance, which complements the elegance of evening wear attire. As for the lining, cotton was utilized, offering a comfortable and breathable option that aligns with sustainability principles.

To ensure successful dye binding, alum and cream of tartar were employed as mordants. Alum helps in enhancing the dye's affinity to silk, while cream of tartar serves as a pH buffer and improves colour uptake (Saraswathi and Shashirekha, 2015). For block printing, wheat starch

was chosen as the binding agent due to its superior binding ability and minimal risk of dye discoloration. This choice was made after considering various starch options, including corn, mango kernel, and rice (Bisht and Lohani, 2017). It is important to note that natural dyed garments require special care to maintain their colour vibrancy and avoid discolouration due to sunlight and strong detergents. Washing and care instructions should be provided to customers to ensure the longevity and beauty of these sustainable garments. Testing was done on dyed fabric to check how well the colour stays on the fabric when it's rubbed. The test is called "colourfastness to crocking" and is done according to the ISO 150 × 12 standard. The fabric samples used for testing were 140mm × 50mm in size. In the dry rub test, the grey fabric and the dyed fabric were clamped in a machine called a crock meter. The machine then rubbed the two fabrics against each other for 10 cycles. After the rubbing, the colour transfer from the dyed fabric to the grey fabric was checked. The result of the test showed that there was no colour transfer from the dyed fabric to the grey fabric, meaning the colour stayed well on the fabric even after rubbing. In the wet rub test, the grey fabric was dampened and weighed. Then, it was placed on the upper part of the meter, while the dyed fabric was placed on the lower part. The machine rubbed the two fabrics against each other for 10 cycles. After the rubbing, they checked if the colour from the dyed fabric transferred to the damp grey fabric. The result of the test showed that there was no colour transfer from the dyed fabric to the damp grey fabric, indicating that the colour held up well even when the fabric was wet and rubbed.

In "colour fastness to washing" test, the fabric samples used were 100mm × 100mm in size. The dyed fabric was washed ten times during the test. After the washing, slight colour changes were observed in the samples. In “colour fastness to light” test, the fabric samples used were 100mm × 100mm in size. The dyed fabric was exposed to direct sunlight for a period of 2 hours during the test.

CONCLUSIONS

In conclusion, the fast fashion model in the fashion industry has led to severe environmental and health consequences, including water pollution, excessive consumption of resources, waste accumulation, and chemical dependency. These detrimental impacts have highlighted the urgent need for a shift towards sustainable practices in fashion. The emergence of sustainable fashion labels and the incorporation of natural dyes present a promising solution to address these challenges. Natural dyes, derived from plant sources, offer significant environmental benefits, such as biodegradability and reduced water pollution. By utilizing natural dyes, the fashion industry can take substantial steps towards reducing its carbon footprint and ecological impact. Throughout this research project, experiments and customer research have contributed to the creation of an elegant evening wear collection under the concept of sustainability through natural dyeing. The use of natural silk fabric and cotton lining exemplifies the seamless blend of luxury and comfort with eco-consciousness, catering to high-end customers in Sri Lanka. Mordants play a crucial role in ensuring effective dye binding to fibers, and the use of alum and cream of tartar has proven to be successful. The exploration of wheat starch as a binding agent for block printing further underscores the commitment to eco-friendly practices. Despite some challenges, such as higher production costs and limited color variations, the positive impact of adopting slow fashion principles and natural dyes cannot be overstated. Through these

efforts, the fashion industry can contribute significantly to the reduction of environmental pollution, resource conservation, and the promotion of a healthier and more sustainable ecosystem.

This research project emphasizes the importance of sustainable fashion in the fashion industry. By highlighting the benefits of natural dyes and eco-friendly practices, it inspires a much-needed change in consumer behavior and industry practices. As consumers become more conscious of the impact of their choices, sustainable fashion can gain traction, driving demand for environmentally responsible garments and encouraging designers and manufacturers to prioritize ethical and eco-conscious production methods. Ultimately, embracing sustainable fashion and natural dyes is not only a crucial step towards safeguarding our planet and its resources but also a testament to our commitment to creating a more harmonious relationship between fashion, the environment, and humanity. By collectively adopting sustainable practices, we can pave the way for a brighter, greener future for the fashion industry and, in turn, contribute to a more sustainable and compassionate world.

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EXCLUSIVE THERAPEUTIC WORKWEAR; A NOVEL APPROACH THROUGH TEXTILE AND CLOTHING TO TREAT AND MINIMISE STRESS AND ANXIETY CAUSED BY WORKPLACE PRESSURE IN SRI LANKA

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ABSTRACT

Workplace depression and anxiety remain pressing concerns affecting the overall well-being of the workforce in the commercial hub and suburbs of Sri Lanka. This unspoken issue leads to health-related imbalances, necessitating the development of innovative therapeutic interventions using apparel and textile measures. To understand the prevalence of these challenges, a survey targeting 100 individuals from both the Private and Public sectors was conducted, revealing that an alarming 79.2% of employees suffer from workplace stress and anxiety, with a significant majority of 59.7% being female employees. In response to this issue, the study focuses on identifying effective coping mechanisms employed by individuals to combat workplace stress. Results indicated a diverse range of therapeutic interests, with nature-based wellness practices showing considerable promise. Specifically, the study aims to revive ancient healing techniques such as colour, tactile, and aroma therapy, known for their historical significance and healing properties, and apply them to modern society to enhance well-being and promote a balanced life. This research contributes valuable insights into fostering a healthier and more supportive work environment, ultimatelybenefiting the overall workforce.

Key words: Workplace depression, Therapeutic interventions, Well-being

INTRODUCTION

Workplace pressure is a known, but less spoken conversation due to high standards in corporate working environment. Yet many people struggle personally not being able to fight against it. Workplace stress and anxiety is a major issue which most of the victims refuse to speak about. Pressure can lead mental and physical damages and harmful for a good wellbeing.” Stress” can be defined as a negative reaction or a response to a situation. Workplace stress can occur due to several reasons such as job demands, high standards and lack of control over work etc. Being overstressed at work can negatively affect health, wellbeing and productivity. Amidst the challenges of the modern work environment, stress has become a pervasive issue affecting employees' physical and mental health (Hassard et al., 2018). The physical symptoms of workplace stress include headaches, muscle tension, chest pains, increased heart rate, fatigue, and insomnia. In the long term, stress can also manifest as distractions, feelings of withdrawal and isolation, outbursts, lack of concentration, and neglect of responsibilities. “According to studies carried out in the UK, 79% of employees are often stressed and therefore lose their productivity at work” (Perkbox, 2020). Similarly, Sri Lanka's working culture demonstrates that stress and anxiety are serious problems,

with employees struggling to express their feelings and a lack of proper precautions and remedies. Tragically, there have been instances of suicide cases directly linked to high-pressure environments and a lack of awareness regarding this issue. In many industries, employees are required to work long hours in physically demanding and stressful environments, which can lead to physical and mental health issues. Traditional work wear may not be designed to provide the necessary support and comfort needed to alleviate these issues, leading to decreased productivity. Furthermore, employees may not have the flexibility to choose clothing that meets their individual needs and preferences, which can further exacerbate these issues. As a result, there is a need for specialized work wear that is designed to promote physical and mental wellbeing in the workplace, providing employees with the necessary support and comfort to enhance their productivity and overall health. The development of therapeutic work wear could help address this problem by providing employees with clothing that meets their unique needs and preferences, while also contributing to a healthier and more productive work environment.

METHODOLOGY

This research project focuses on the market potential for therapeutic workwear in Sri Lanka, specifically catering to top-ranking female employees working in Colombo and its suburbs. The target customer group consists of females aged 25-40 years, with a minimum income of Sri Lankan Rupees 300,000. The study aims to identify the existing market structure for female workwear in Sri Lanka, highlighting the competitive landscape dominated by a few leading market owners. However, there is a significant market gap in the realm of therapeutic workwear, presenting an opportunity for the establishment of a new and innovative brand. The research involves gathering data from a sample population of approximately 100 individuals. Data collection methods include Google surveys, telephone conversations, and direct observations, as well as observing the impact of social media platforms on customer preferences. Furthermore, the project involves an exploration of historical practices of aromatherapy and various means of healing used in the past, present, and future. The study includes experimenting with different methods of aroma infusion into garments, such as essential oil infusion, natural substances infusion through Ayurvedic methods, and the infusion of aromatic agents into garments through accessible pockets. Manual test cycles were conducted to identify the most durable and practical fragrance infusion technique. Additionally, an in-depth study of fabrics available in the market, their nature, texture, and composition, was carried out. Feedback was gathered to identify the most suitable textures for the therapeutic workwear. Colour psychology also explored as part of the research to understand how different colours can influence human emotions, moods, and reactions to colour schemes. The aim of this research paper is to contribute valuable insights into the market potential and the practical application of therapeutic workwear in Sri Lanka. It sheds light on the opportunities for establishing an upcoming brand in this domain and how the integration of aromatherapy, fabric textures, and colour psychology can enhance the well-being and productivity of female employees in the workplace.

RESULT

Aromatherapy, a practice rooted in ancient civilizations, involves the use of aromatic plant extracts to promote physical and emotional well-being. Throughout history, various cultures have

employed aromatherapy for therapeutic purposes (Ballard, 2002). In ancient civilizations such as Egypt, Greece, and China, aromatherapy was revered for its medicinal properties and spiritual significance (Davies, 2010). Essential oils were used in religious rituals, medicinal concoctions, and even embalming processes. The wisdom of ancient healers has laid the foundation for modern-day aromatherapy practices. The study explores innovative ways to integrate aromatherapy into everyday life by infusing garments with aromas that promote relaxation and wellbeing. Tactile therapy, which includes techniques like massage, acupressure, and reflexology, offers a non-invasive means to address stress-related symptoms (Field, 2016). The power of touch in these therapies is believed to trigger the release of endorphins and reduce cortisol levels, thus promoting relaxation and a sense of well-being (Ju et al., 2013). Research studies have demonstrated the effectiveness of tactile therapies in reducing stress and anxiety levels among various populations (Chenet al., 2020). Colour psychology suggests that different colours can impact human emotions and moods. Purple, associated with creativity and relaxation, can foster a serene and imaginative workplace. Light green, symbolizing growth and harmony, creates a tranquil and refreshing atmosphere. White, representing simplicity and clarity, promotes efficiency and organization, although moderation is key to avoid a cold environment. Yellow, exuding optimism and energy, can uplift and counter stress, yet careful use is essential to prevent overwhelming sensations. By considering the unique effects of these colours' garments can create a positive influence on employee well-being and productivity (Elliot & Maier, 2013; Kwallek et al., 1988; Mehta & Zhu, 2009). As a result of this survey, An Exclusive Therapeutic Workwear Collection creation depicting the concept of "SERENE" to treat stress and anxiety caused by workplace pressure by using aroma therapy, color therapy and tactile therapy targeting the female working population of Sri Lanka. The collection draws its inspiration from the Orchid flower, known for its gentle and velvety texture, calming and soothing color combinations, as well as its fragrances possessing healing properties. The focus of these healing properties was to engage the sensory organs: the nose to experience the delightful fragrance, the skin to feel the softness, and the eyes to appreciate the cool and harmonious color palette. The fragrance was delicately introduced into the collection by infusing it with Cinnamon, Cardamom, and Clove pods. This infusion was skillfully achieved using the fabric bubbling technique, focusing on the neck area, making it easier to inhale and enjoy the captivating aroma.

The collection's soft and soothing textures were masterfully crafted through various techniques such as Pleating, Quilting, and Reverse Appliqué. These methods were complemented by incorporating relaxing fabrications, providing a comforting sensation whenever the surface is touched. To enhance the psychological aspects of the collection, a harmonious color palette comprising shades of white, green, yellow and purple was thoughtfully employed. These colors were chosen to promote feelings of calmness, relaxation, a positive mindset, and boldness, enhancing the overall experience of the collection.

The following shows the final outcome of the design-based research.

Figure 1 Final Collection

DISCUSSION

Aroma infusion for clothing is an advanced and subjective concept. The durability of infused aroma may depend on several factors, such as the number of wash cycles, detergents and chemicals used during washing, drying methods, water temperature, reaction to sweat, and heat application during ironing. Through the study, depositing aromatic spices in accessible pockets has shown to give a strong yet calming effect to fabric, incorporating textile manipulation techniques like fabric bubbling, which has led to certain success. However, in the long run, it may become impractical for day-to-day usage. Among textile manipulation methods, techniques such as fabric bubbling, quilting, and reverse applique have achieved prominent success, creating interesting textures for the wearer. Colours can directly affect someone's attitude, transforming negativity into positivity, relaxing them, and boosting productivity by enhancing mood.

CONCLUSIONS

Achieving a balanced lifestyle involves aligning the mind, body, and soul along a harmonious axis. This equilibrium of thoughts and emotions leads to a stable mindset, necessitating both mental and physical tranquility. However, attaining serenity in our daily lives can be challenging. To address this, noninvasive and generally safe practices such as aroma therapy, tactile therapy, and colour therapy have proven beneficial for relaxation, stress reduction, and overall wellbeing. The growing interest in these therapies presents a significant market opportunity for Therapeutic wear. Moreover, it fosters awareness about the pressures associated with various work cultures and creates a platform to openly address and find meaningful solutions, ultimately fostering a safe and conducive workspace for everyone's optimal performance.

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ANTIMICROBIAL ACTIVITY OF SYZYGIUM AROMACTICUM AGAINST POTENTIAL ENTERIC PATHOGENS

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ABSTRACT

Food borne diseases are a major cause worldwide. These diseases are caused by enteric pathogens such as Escherichia coli, Salmonella typhi and Staphylococcus aureus. These microorganisms have developed resistance against many antibiotics due to the increased use of drugs which reduces the effectiveness of conventional antibiotics. Spices and herbs are known to be natural sources consisting of antimicrobial activity. Clove is one spice which promises to possess antibacterial activity. The present study was carried out to determine the antimicrobial activity of cloves using methanol, ethanol and chloroform extracts against Escherichia coli, Salmonella typhi and Staphylococcus aureus strains. The extraction was carried out by the cold maceration technique. Antimicrobial activities of different solvent extracts were screened by disk diffusion. Minimum Inhibition Concentration (MIC) and Minimum Bactericidal Concentration (MBC) were determined by broth dilution method. Also the study was done to investigate the phytochemical compounds in each extract. The results revealed that methanol and ethanol extract of clove showed a better antimicrobial activity against pathogens compared to chloroform extract of cloves. The results also demonstrated that the gram positive bacteria were more sensitive to clove than gram negative bacteria. Phytoconstituents analysis demonstrated the presence of flavanoids, saponins, terpenoids, carbohydrate and tannins which are responsible for the antimicrobial activity.

Keywords: Enteric pathogens, Syzygium aromaticum, Antimicrobial activity

ISOLATION AND IDENTIFICATION OF RHIZOBIUM SPECIES FROM DIFFERENT LEGUME PLANT ROOTS

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ABSTRACT

Rhizobium is a soil habitat, gram negative bacterium which is associated symbiotically with the roots of leguminous plants. The main scope of this study was to isolate Rhizobium species from different leguminous plant root nodules and identify the characteristics of Rhizobium species by conducting biochemical tests. A total number of 22 leguminous plants of Fabaceae family were collected from Colombo (10 plants) and Anuradhapura (10 plants) districts of Sri Lanka. Rhizobium colonies were obtained by streaking samples of crushed root nodules of different plants on yeast mannitol agar medium. All samples which means 100% of total sample size were found to be nitrogen fixing root nodulating bacteria with similar colony morphological characteristics as Rhizobium species. Microscopic examination revealed that 20 of the sample isolates which means 91% were rod shaped and gram negative in nature indicating the presence of nitrogen fixing Rhizobium species. The 20 sample isolates which revealed gram negative bacteria were further characterized by biochemical including tryptophan test, starch hydrolysis test, oxidase test, catalase test, voges Proskauer test which revealed 17 sample isolates (85%) positive for Rhizobium species. However, 3 samples (15%) needed further investigations in order to confirm the presence and characteristics of Rhizobium species. Antibiotic sensitivity pattern for all isolates against four different antibiotics was evaluated by disk diffusion method. It was observed that most of the Rhizobium isolates were susceptible to chloramphenicol and kanamycin and most were resistant to erythromycin and ampicillin at the amount of antibiotics under observation.

Keywords: Rhizobium, Fabaceae, Leguminous, Antibiotic sensitivity

DETECTION AND ANALYSIS OF CHROMOSOMAL ABNORMALITIES IN PATIENTS WITH RECURRENT PREGNANCY LOSS USING CYTOGENETIC TECHNIQUES

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ABSTRACT

Recurrent pregnancy loss is known as post-implantation failures in natural conception which is identified as three or more consecutive miscarriages in a woman. Chromosome abnormalities, untreated hypothyroidism, uncontrolled diabetes mellitus, a few uterine structural anomalies, and antiphospholipid antibody syndrome are identified as the leading causes of recurrent pregnancy loss. 50%- 60% of early spontaneous miscarriages are associated with chromosomal anomalies. This report highlights the detection of chromosomal abnormalities in couples with recurrent miscarriages using cytogenetic analysis. Cytogenetic analysis of miscarriages can explain at least 50% of cases. This project was carried out with a clinically recognized cohort of 10 couples that were referred to the Human Genetic Unit in Colombo. Karyotyping was performed for each partner in these couples, and analysis was done using GenASI 7.2.7 software. With the observed results, this report presents various types of chromosomal abnormalities that could lead to recurrent miscarriages. These patients could be educated and advised on possible treatments and genetic counselling to reduce the risks of the condition and assists in successful pregnancy outcomes.

Keywords: Cytogenetics, Karyotyping, Miscarriage, Chromosomal abnormalities

INVESTIGATING THE EFFECTS OF BANANA LEAVES AND PADDY STRAW AS SUBSTRATES ON THE NUTRITIONAL COMPOSITION, ANTIOXIDANT ACTIVITY AND BIOACTIVE COMPOUND LEVELS OF PLEUROTUS EOUS (BHUTAN OYSTER MUSHROOM)

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ABSTRACT

The cultivation of oyster mushrooms (Pleurotus spp.) is popular around the world due to their nutritional composition and low cost of production. Agricultural waste products such as paddy straw, sawdust, banana leaves etc. are used as substrates to cultivate oyster mushrooms and this would also help to reduce environmental pollution caused by the burning of agricultural residues. Pleurotus eous (Bhutan oyster) is a type oyster mushrooms commonly cultivated in Sri Lanka. So far, limited research has been done related to Pleurotus eous. This research was designed to investigate the best substrate to cultivate Pleurotus eous among five different combinations of Paddy Straw (PS) and Banana Leaves (BL) (100%PS, 100%BL, 75%PS:25%BL, 25%PS:75%BL and 50%PS:50%BL). Morphological parameters of the harvested mushrooms were recorded and the aqueous extracts were prepared. Total protein, carbohydrate, polyphenols and antioxidant capacity were measured through spectrophotometric methods. Fastest mycelial growth and fastest harvest were recorded in mushrooms harvested from 100%PS and they also contained the highest average cap diameter and average fresh weight. Highest total protein and carbohydrate contents were observed in 75%PS:25%BL and 100%PS substrates respectively. Mushrooms grown on 100%BL reported the highest total phenolic content and the lowest DPPH IC50 (Inhibitory Concentration) values. Based on the overall results, it can be concluded that paddy straw alone and in combination with banana leaves (25%) can be used to cultivate nutrient rich Pleurotus eous to achieve higher yields. Moreover, 100% banana leaves can be considered as the best substrate with respect to antioxidant capacity.

Keywords: Agricultural Waste, Proteins, Carbohydrates, Polyphenols, Antioxidant Capacity

COMPARISON OF 16S RRNA SEQUENCES FROM CLINICAL CULTURE ISOLATES OF BACTERIAL SPECIES FOUND IN SRI LANKA WITH SEQUENCES FROM INDIA AND PAKISTAN

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ABSTRACT

Usage of molecular techniques for detection and characterization of bacterial 16S rRNA regions are increasingly becoming a practice. 16S rRNA gene is conserved in bacteria and comprises hypervariable regions .16S rRNA sequencing is globally used for identification of bacteria within a single sample, single workflow and polygenetic studies. In this pilot study it was focused on using a 16S rRNA specific real-time PCR assay to characterise major pathogenic bacteria found in Sri Lankan health setups. Staphylococcus aureus, Pseudomonas aeruginosa, Klebsiella pneumonia, Acinetobacter baumanii DNA were extracted and sequenced using Sanger method (capillary sequencing). The resulting sequences were analyzed phylogenetically using Mega-X. Further, these sequences were compared with that of same species found India and Pakistan, which yielded high similarity.

Keywords: Bacteria,16s rRNA, capillary Sequencing, Mega-X

EXPLORING LMS INTERACTION DATA AND PREDICTION OF STUDENTS' GRADES USING STANDARD SUPERVISED CLASSIFICATION ALGORITHMS

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ABSTRACT

In the context of higher education financing shifting its dependency from student enrollment to degree completion, the necessity for strategies that elevate educational quality and amplify retention rates has become critical. This study is anchored in the application of predictive modeling techniques to aid in the timely identification of students who may struggle academically, aiming to enhance course retention. Utilizing demographic and behavioral data harvested from Learning Management Systems (LMS), prediction models have been built. These models are specifically engineered to forecast the final grades of students, thus providing a mechanism for the early identification of students at risk of underperformance. Through the employment of preprocessing techniques and regression methods rooted in machine learning, these predictive models are designed to operate at the level of the individual student. The analysis conducted in this study presents compelling evidence suggesting that the degree of a student's engagement with the LMS accurately mirrors their final grades. This research underscores the quantitative value of predictive modeling technology in an educational context and offers an approach for conducting empirical studies of predictive modeling utilizing educational data. Data spanning the years 2020 and 2021 was methodically analyzed to devise early prediction models for students' grades. This analysis involved a comprehensive examination of LMS log files and tracking of students; activity counts. The models were derived from data collected over three academic semesters at the University of Sri Jayewardenepura, Faculty of Humanities and Social Sciences. Eight distinct regression models have been formulated for all students, with algorithms such as Multiple Linear Regression, Random Forest, and K-Nearest Neighbor being thoroughly tested both with and without the use of Principal Component Analysis. The Random Forest algorithm, when applied without Principal Component Analysis, displayed superior performance with the highest R^2 value (0.3506), indicating its reliability in predicting student outcomes.

Keywords: Student Grade Prediction, Academic Performance, Machine Learning, Linear Regression, Random Forest Classification

PHYTOCHEMICAL ANALYSIS AND DETERMINATION OF ANTIOXIDANT ACTIVITY OF DIFFERENT SPECIES OF CITRUS, EXTRACTED USING SELECTED SOLVENTS

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ABSTRACT

Phytochemicals are naturally occurring compounds found in plants, and scientific studies have shown that they possess strong antioxidant and anti-inflammatory properties. This study aimed to investigating the impact of water and methanol for the phytochemical profile and the antioxidant activity of leaves of selected citrus species (Citrus aurantifolia, Citrus lemonicious, Citrus aurantium, Citrus sinensis, and Citrus reticulate). The qualitative analysis of phytochemicals was carried out initially. Total Phenolic Content (TPC), Total Antioxidant Capacity (TAC) and Total Flavonoid Content (TFC) were tested using Folin-Ciocalteu assay, Phosphomolybdenum assay, and aluminum chloride colorimetric method respectively. The free radical scavenging ability was determined using 2,2-diphenyl-1-picrylhydrazyl (DPPH). Antibacterial activity was determined against Escherichia coli (E.coli) and Staphylococcus aureus (S.aureus). Statistical analysis was carried out. Carbohydrates, phenols, flavonoids, terpenoids, alkaloids and tannins were present in all water and methanolic extracts except for steroids and saponin in both water and methanolic extracts of C.aurauntium, C.sinensis, and all methanolic extracts respectively. The highest TPC, TAC, and TFC were found in water extract of C. reticulate (66.25 µg GAE/g) C.sinensis (20.8411 µg AAE/mL) and C. lemonicious (80.58 µg/mL QE) respectively. C. reticulate had the highest DPPH free radical scavenging activity (32.11 mg/mL) among water extracts, while C. lemonicious (117.04 mg/mL) had the highest free radical activity in methanolic extracts. Water extract of C. aurantium demonstrated strong sensitivity (2.20 cm) against S. aureus, among both extracts. Citrus water extracts presented significantly higher values of TPC, TAC, and TFC when compared to their corresponding methanol extracts ($p < 0.05$). Overall, the water extracts have high amounts of phenols, flavonoids, and antioxidants furthermore methanol extracts have high potential for scavenging DPPH free radicals. In conclusion, this study provides valuable insights into the impact of water and methanol solvents on the phytochemical profile and antioxidant activity of the selected Citrus family.

A STUDY ON ATTITUDES AND PERCEPTIONS ON THE NUTRITIONAL VALUE AND HEALTH BENEFITS OF RAW BITTER GOURD AND BITTER GOURD RELATED PRODUCTS IN THE MARKET ON GENERAL PUBLIC IN COLOMBO DISTRICT, SRI LANKA

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ABSTRACT

This study examines the attitudes and perceptions of the general public in the Colombo District, Sri Lanka, regarding the nutritional value and health benefits of raw bitter gourd and bitter gourd-related products. Despite the potential health benefits, there is a lack of research on bitter gourd preferences and products. The findings reveal that taste preference is the primary reason for non-consumption, with 49% of respondents expressing dislike for the taste. Additionally, 25% of respondents reported a general dislike for the vegetable. However, respondents displayed a level of awareness regarding bitter gourd's health benefits, including blood sugar control, cholesterol reduction, weight loss, and immune system support. Although some respondents were familiar with bitter gourd products such as crackers, biscuits, chips, and juice, there was uncertainty about their availability. Future research should focus on education initiatives to increase awareness, innovative product development to cater to diverse tastes, exploration of culinary applications, clinical studies to further understand the health benefits, analysis of consumer preferences and market dynamics, promotion of sustainable cultivation practices, and long-term health impact assessment. These findings provide valuable insights for future research, policy formulation, and marketing strategies to promote bitter gourd consumption and leverage its nutritional value and health benefits in Sri Lanka. By addressing taste concerns, enhancing awareness, and diversifying product offerings, bitter gourd could be more widely embraced as a nutritious vegetable with potential health advantages in the Colombo District and beyond.

A STUDY ON THE BARRIERS AND CHALLENGES AFFECTING THE EDUCATION OF TRANSGENDER YOUTH IN THE COLOMBO DISTRICT, SRI LANKA

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ABSTRACT

Education plays a pivotal role in the advancement of any democratic society, yet transgender youth, whose gender identity differs from their assigned sex, confront substantial barriers to accessing education. This study investigates the obstacles impeding the educational progress of transgender youth in Sri Lanka's Colombo District. Employing a mixed-methods approach, this research combines qualitative data collection techniques. In-depth interviews were conducted with transgender individuals to understand their experiences and challenges. Additionally, surveys were administered to gather demographic information and quantify the extent of barriers faced. The study's objectives encompass assessing educational levels, evaluating family support, identifying social influences, and uncovering financial obstacles. The findings reveal that despite possessing qualifications comparable to cisgender peers, transgender students face challenges pursuing higher education due to discrimination and societal prejudices. The research underscores the importance of an inclusive educational environment that positively impacts well-being and opportunities. The remarkable resilience demonstrated by transgender individuals in navigating complex emotional landscapes is noteworthy. The implications underscore the urgency of creating an educational setting that accommodates transgender individuals' unique needs. Their aspirations mirror those of their peers, emphasizing society's responsibility to treat them with respect. Recommendations urge understanding, ending discrimination, and providing unwavering support to transgender individuals striving for education. These efforts significantly contribute to shaping a more inclusive and equitable society.

Keywords: Transgender youth, education Barriers, discrimination, societal prejudices, inclusive education

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