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ABSTRACTS OF THE PAPERS

FORMULATION OF FACIAL COSMETIC CREAM CONTAINING FRUIT EXTRACT OF *CARICA PAPARA* Linn. AND ITS ANTIOXIDANT ACTIVITY

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ABSTRACT

Skin aging is the continuous deterioration process which is caused by damage of cellular DNA and protein. Free radicals causes oxidative alterations in collagen, elastin material, changes in membrane characteristics and encourage polymerization reactions, and thus causes permanent deterioration of the skin cell. Antioxidants play an important role in preventing premature skin aging. The market share for herbal beauty products has been increased considerably due to arising consumer awareness regarding to the harmful effect of synthetic chemicals. The development of safer antioxidants from natural sources has increased, and plants have been used as a good source of antioxidant to fight against oxidative damage of the skin. The aim of this research work is to formulate antioxidant facial cosmetic cream from 50% ethanolic extract of *Carica papaya* L. fruit. Prior to cream formulation, botanical investigation was done by morphological study and microscopic examination and this was identical with those described in the Flora of British India (Hooker, 1897) and Ayurvedic Pharmacopoeia of India (2008). The antioxidant cream was prepared by fusion method followed by levigation with 50% ethanolic extract of *C. papaya* L. fruit. The pharmaceutical qualities of all formulated creams were determined and evaluated for its physicochemical parameters such as pH, viscosity, spreadability, tube extrudability. The in-vitro free radical scavenging activity of all formulated creams was examined by using 1,1-diphenyl-2-picrylhydrazyl (DPPH) assay method. Then, skin irritation test was performed on the formulation F3b by Draize's method according to OECD test guidelines 404. All formulated creams showed good rheological characteristics and acceptable pH range. Evaluation of antioxidant activity on all formulated creams showed that formulation F3b containing 50% ethanolic fruit extract of *C. papaya* L. showed better antioxidant activity than the other five different formulations and it was not much different compared to the extract which IC_{50} value was 0.74 mg/mL. The skin irritation study of formulation F3b showed that there is no irritation potential in rabbit skin. Therefore, it can be concluded that antioxidant facial cosmetic cream containing 50% ethanolic extract of *C. papaya* L. fruit is safe and useful to treat premature skin aging problems.

Keywords : *Carica papaya* L., DPPH, Draize's method, OECD guideline, IC_{50}

STUDY ON PERCEPTION OF UNIVERSITY OF TRADITIONAL MEDICINE STUDENTS ON PHYSICAL MEDICINE SUBJECTS

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ABSTRACT

The purpose of this study was to evaluate the perception of University of Traditional Medicine students on physical medicine subjects. The research questions were investigated using a quantitative research design that included self–administered questionnaires. Third year, fourth year students and interns were contacted and given an explanation about the purpose of this research. Twenty questionnaires allow students to determine how much their understanding in subjects by score 0 – 100. Seven questionnaires allow students to determine their attitudes on subjects by agree, strongly agree, disagree and strongly disagree. A total of 176 students' answers were completed. The result was analyzed using SPSS. In understanding level on Massotherapy, the majority of students 43.6% good understand, 38.5% understand and 17.9% fair understand while there was no one in lack of understanding. In Fracture and Traumatology, the majority of students 42.6% understand, 29.8% fair understand and 25.3% good understand while 2.3% were observed lack of understanding. In Acupuncture, the majority of students 38.6% understand, 37% fair understand and 20.8% good understand while 3.5% were observed lack of understanding. In Panchakarma therapy, the majority of students 42.7% understand, 36.7% good understand and 19.1% fair understand while 1.5% was observed lack of understanding. On students' attitude, the majority of students 52.3% were agreed, 45.6% strongly agreed, while 2.1% responses were of disagreement and there was no one in strongly disagreement.

Keywords: Students' perception, Students' attitude, Physical Medicine Subjects

A STUDY ON JOB SATISFACTION OF TRADITIONAL MEDICINE PRACTITIONERS

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ABSTRACT

Job satisfaction is an essential part of ensuring high quality care and is highly associated with quality of services and individual productivity. For optimal performance of the health care system, the work force needs to be satisfied with the job he/she is doing. This study was aimed to determine the level of job satisfaction and to find out the factors influencing job satisfaction of traditional medicine practitioners (TMPs) at the traditional medicine hospitals and clinics. Study design was a cross–sectional analytic study with mixed method approach and it was done among 92 TMPs from all traditional medicine hospitals and clinics in Bago region conducted from December 2017 to February 2018. The quantitative data were collected by using 57 specific structured questions by self–administered method. As a qualitative data collection method, three focus group discussions (eight to ten participants in each FGD) were performed with various levels of traditional medicine practitioners in Pyay, Bago and Yetarshay Townships. The quantitative data entry was done in epi data version 3.1 and analysis was done in SPSS version 20. The qualitative data were noted down and written in Myanmar language. Thematic analysis was performed manually. Majority of participants perceived that they had less opportunity to develop themselves in their work and needed to continue learning. Most of them had good dealing with the patients and their co–workers. Over half of the participants had good mood on their superiors. About half of participants perceived that they were working over responsibility and other assignments not related to their duties and had a sense of working overtime. Majorities were solving the problems encountered in the field in their own ways and only few persons got the praise for doing a good job. Nearly two fifth of the participants had a feeling to quit job, sometimes. However, only one fifth wanted to change their carrier and most of them were satisfied with their job in general at the time of survey. Their expectations to modify were to increase salary, to provide opportunity for promotion, to create good working environment, to provide opportunity for training and to make fair rules for departmental management so that they would be sustainable to continue their work. By getting the above facts concerning with the job satisfaction of TMPs who are directly in touch with public will be an important role to improve the efficiency and performance of Department of Traditional Medicine.

Keywords: Job satisfaction, traditional medicine practitioners.

ELEMENTAL ANALYSIS AND SAFETY OF *YASADA BHASMA* (ZINC ASH)

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ABSTRACT

Zinc ash is used in the treatment of urinary disorders, eye disorders, asthma, migraine, menorrhagia, dysmenorrhea, leucorrhoea, cough, fever, tremor, and as *Rasayana* drug in *Vijjadhara naya*. The present study was undertaken to determine elemental composition and safety of *Yasada Bhasma* (Zinc Ash) during 2017 – 2018. Zinc ash was prepared from purified zinc and powder of *Achyranthes aspera* L. by using special type of oven (*Mal–Kinn–Pho*) for 24 days. Elemental composition was analyzed by WDXRF at Department of Geology, University of Research Center, Mandalay. In elemental analysis, Al, Si, P, K, Ca, Cr, Fe, Cu, Zn, As, In, Sn and Pb as element and Al_2O_3, SiO_2, P_2O_5, K_2O, CaO, Cr_2O_3, Fe_2O_3, CuO, ZnO, As_2O_3, In_2O_3, SnO_2 and PbO as elemental oxide were detected. Zinc oxide (ZnO) was observed as main component in this drug. Acute and sub–acute toxicity studies were performed as per OECD guidelines 425 and 407 respectively at Department of Medical Research (Pyin Oo Lwin branch). In acute toxicity study, there was no observed death or toxic signs and symptoms, and no abnormalities on grossly features. It was determined that the LD_{50} of zinc ash was greater than 5000 mg/kg in male albino rats. In the repeated dose study, there was no observed death or toxic signs and symptoms. There was significant body weight gain in all groups. Grossly, there was no observed any morphological difference compared with the control group. There was observed normal histological appearance except mild vascular congestion compared with the control group. These mild histopathological changes were observed in kidney and liver of medium and high dose groups. The histopathological section of other organs revealed no failure on comparison with the control group. Therefore, it was concluded that *Yasada Bhasma* (zinc ash) was found to be free of any toxic effect under the condition of this study.

Keywords: Zinc Ash (*Yasada Bhasma*), Elemental Analysis, Safety.

STUDY ON THE USES OF TRADITIONAL MEDICINE IN RURAL PEOPLE BASED ON THEIR KNOWLEDGE, ATTITUDE AND PRACTICE FOR PRIMARY HEALTH CARE IN TAUNGOUT TOWNSHIP

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ABSTRACT

A cross–sectional descriptive study using face to face interview was conducted with household members living in Taungout Township from September 2017 to February 2018 to assess the rural peoples' knowledge, attitude and practice of cultural belief systems and values on TM and medicinal plants which they have used for so that for evaluating better care of TM among rural people. A total of 600 participants were included in this study. Majority of participants were female, accounting for 68.8%. The average age of participants were 49.8 years old with standard deviation of 16.3 years arranging from minimal 18 years to 87 years old. Most of the patients were in primary and middle school level, 40.3% and 27.0% respectively. Two third of participants (74.3%) were married. Majority of rural people, 83.9% reported that there had been used traditional medicine in their family. Although two third of participants, 73.2% agreed that traditional medicine should be used as directed by traditional medicine practitioners, majority of participants reported that they used it from drug shop (54.4%), neighbors (21.6%), traditional medicine practitioners (11.6%). Moreover, they had been used variety of TM medicine and plants for specific diseases. Therefore, improving knowledge on use of TM medicine and better practices for seeking care to TM practitioners should be evaluated by behavior change approach among rural people.

ANTI–HYPERGLYCAEMIC EFFECT OF MODIFIED TMF –17 ON TYPE 2 DIABETES MELLITUS PATIENTS

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ABSTRACT

In traditional medicine, TMF–17 has been experimentally used to treat hypertension and diabetes mellitus. Diabetes mellitus is termed as *Madhumeha* in *Ayurvedic* Medicine. It was *Sangahita* type of the disease in *Desana* Medicine and can be treated with hot, bitter and pungent taste of the drugs. This study was aimed to determine the anti–hyperglycaemic effect of modified TMF–17 on type 2 diabetes mellitus patients. Long term use of the drug need to prevent some complications in type 2 diabetes patients. Camphor and nagi camphor were removed from the original TMF–17 to prepare modified TMF–17. All patients between the age of 40–60 years, admitted to 100 bedded TMTH, Mandalay, were screened for type 2 diabetes mellitus and among them, twenty–two were selected with the inclusion criteria. These patients who gave inform consent for participation were conducted hospital based clinical trial according to objectives of determining anti–hyperglycaemic effect of modified TMF–17 on type 2 diabetes mellitus patients. Before the intervention, screening of FBS, 2HPP, ECG, serum urea and creatinine were done. The modified formula was prepared tablet dosage form to promote patient compliance and all patients took seven tablets (300 mg/tablet) three times per day before the meal after getting diet control and regular physical exercise advice. Daily FBS and 2HPP blood sugar levels were measured from the capillary by using the glucometer with the observation of any adverse effect during the intervention. The mean FBS and mean 2HPP levels were compared at day–0, day–7, day–14 and day–21. The blood glucose levels were significantly reduced from 235.86 $\pm$ 55.5 to 201.04 $\pm$ 44.6, 173.36 $\pm$ 37.2 and 149.68 $\pm$ 21.9 mg/dL respectively (p <0.0001). As for 2HPP level, from 370.22 $\pm$ 66.5 significantly reduced to 310.31 $\pm$ 66.4, 267.68 $\pm$ 68.6 and 226.68 $\pm$ 63.3 mg/dL (p<0.0001). There was no severe hyperglycaemic or hypoglycaemic in patients during the study period. Therefore the present study reveals that there was anti–hyperglycaemic effect of modified TMF–17 on type 2 diabetes mellitus patients without complications.

Keywords: Modified TMF–17, Diabetes Mellitus, Anti–hyperglycaemic, Traditional Medicine.

ANTIPYRETIC EFFECT OF TRADITIONAL MEDICINE FORMULATION–16 (APU–NYEIN–THWEI:–HSEI:) WITH DECOCTION OF BETEL LEAF IN CHILDREN WITH FEBRILE ILLNESS

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ABSTRACT

Fever is an extremely common sign in paediatric patients and the most common cause for a child to be taken to the physicians. Some children are prone to febrile convulsion even slightly increase in body temperature. The present study was aimed to determine the antipyretic effect of TMF –16 with decoction of betel leaf in children with febrile illness before and after administration. This study was hospital–based quasi experimental study carried out from 1st September 2015 to 31st August 2016. In the present study, 30 paediatric patients were included in accordance with inclusion and exclusion criteria. All paediatric patients were attended to Out Patient Department and In Patient Department, Traditional Medicine Teaching Hospital, Mandalay during study period. Before drug administration, the paediatrics patients were measured and recorded for base line data including body temperature, pulse rate and respiratory rate. The dose of TMF–16 and decoction of betel leaf were calculated according to age. After drug administration, the body temperature, pulse rate and respiratory rate were measured and recorded every 1 hour, 2 hours and 3 hours. Results were analyzed with General Linear Model, one–way ANOVA by using SPSS software version 21. Mean value of body temperature before administration was 101.50 ˚F. The mean values of temperature in 1, 2 and 3 hours after administration were 101.00 ˚F, 100.27 ˚F and 99.78 ˚F. The p value was < 0.001. These results suggest that TMF–16 with decoction of betel leaf significantly decreased body temperature in children with febrile illness. Therefore, TMF–16 with decoction of betel leaf should be used for the treatment of fever in children according to this study because it was safe, effective and easily available in community with low cost.

Keywords: Traditional Medicine formulation–16, Decoction of betel leaf, children with febrile illness

EFFECT OF *THWAY-TOE-KYA-HSEI* (*AHD*-9) COMMONLY USED IN MANDALAY TRADITIONAL MEDICINE TEACHING HOSPITAL ON MODERATE HYPERTENSIVE PATIENTS

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ABSTRACT

Hypertension is the most common cardiovascular illness and is a major public health issue in developed as well as in developing countries. *Thway-Toe-Kya-Hsei* (*AHD*-9) which is composed of nine plant materials, has been used in hypertensive patients at traditional clinics and hospitals. This study was conducted to determine the antihypertensive effect of *AHD*-9 by a double blind randomized clinical trial on moderate hypertensive patients during 2016 – 2017. The forty patients aged 35 to 65 were randomly divided into two groups; (Test group: n = 20 and Control group: n = 20). The test group was given *AHD*-9 three times per day with warm water daily for three days and *MTMF*-28 as control. Blood pressure was measured daily in the morning and evening of day 0 to day 4. The mean SBP and DBP of patients were compared before and after intervention, as well as also between test drug and control by using paired *t*-test. In test group, at 6:00 am, the mean SBP reduced 36 mmHg from 158.55 ± 6.278 mmHg on day 0 to 122.55 ± 6.809 mmHg on day 4 ($p < 0.001$) and the mean DBP reduced 20 mmHg from 100.10 ± 6.298 mmHg on day 0 to 80.00 ± 8.429 mmHg day 4 ($p < 0.001$). At 6:00 pm, the mean SBP reduced 38.5 mmHg from 160.00 ± 64.291 mmHg on day 0 to 121.50 ± 6.303 mmHg on day 4 ($p < 0.001$) and the mean DBP reduced 21.75 mmHg from 101.50 ± 3.284 mmHg on day 0 to 79.75 ± 8.346 mmHg, ($p < 0.001$). In control group, at 6:00 am, the mean SBP reduced 31.65 mmHg from 156. 25 ± 5.820 mmHg on day 0 to 124.60 ± 8.586 mmHg on day 4 ($p < 0.001$) and the mean DBP reduced 18.1 mmHg from 99.35 ± 6.158 mmHg on day 0 to 81.25 ± 5.711 mmHg on day 4 ($p < 0.001$). At 6:00 pm, the mean SBP reduced 34.65 mmHg from 158.85 ± 2.924 mmHg to 124.20 ± 8.433 mmHg day 4 ($p < 0.001$) and the mean DBP reduced 19.85 mmHg from 99.95 ± 6.419 mmHg on day 0 to 80.10 ± 5.524 mmHg on day 4 ($p< 0.001$). The results showed that the mean SBP and DBP of patients in both test and control groups reduced significantly ($p=<0.001$) before and after treatment. In comparison antihypertensive effects between *AHD*-9 and *MTMF*-28, the blood pressure in both groups were not significantly different. Therefore, it was concluded that *AHD*-9 could be provided for the treatment on moderate hypertensive patients.

Keywords: *AHD*-9, *MTMF*-28, Moderate Hypertensive Patients.

SERUM IRON CONCENTRATIONS IN THE PATIENTS BY USING TMF–14 (DEVA AUH THADA THWAY HSAY)

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ABSTRACT

Myanmar indigenous medicines containing Kyauk–thway (ferric ammonium citrate) were used for the treatment of anaemia and other ailments. The ash and moisture contents were determined by ashing method and oven dried method.The essential nutritive elements (Fe, Zn, Cu), toxic elements (Pb, As), mineral elements (Na, K, Mg, Ca) were determined by Atomic Absorption Spectroscopy (AAS). Total iron concentrations in the sample were also determined by using 1,10–phenanthroline spectrophotometric method. Comparative studies of iron concentrations between AAS results and Spectrophotometric results were carried out. Zinc, copper, lead and arsenic were not detected in the sample. The nitrogen content (%) in the sample was determined by micro Kjeldahl method. The citric acid content (%) was determined by gravimetric method. TMF–14 (Deva Auh Thada Thway Hsay) were prepared based on Myanmar traditional medicine manual. Deva Auh Thada Thway Hsay is a good quality Myanmar traditional medicine and it is mainly used in disorders of heart and bile. It is also used as Heart Tonic and Blood Tonic for various anemic patients.The serum iron concentrations in 30 out–patients of Yangon Traditional Medicine Hospital (YTMH) before and after taken TMF–14 for two weeks were determined by Lisa 300 plus autoanalyzer. According to the interview data, all patients acknowledged that they feel well after taking the medicine for two weeks. However, after giving, TMF–14 to 30 patients for two weeks, it was found that serum iron contents were increased only in 16 patients, decreased in 12 patients, unchanged in 2 patients. In the case of 12 patients who have lower serum iron concentration after taking the TMF–14, they also acknowledged that they feel well after taking the medicine. It can be considered that if TMF–14 will not be given to these 12 patients, they might have more decreased of serum iron concentrations in their blood sample.

Keywords: Myanmar indigenous medicines, Kyauk–thway, AAS, nutritive elements, mineral elements, serum iron concentrations , TMF–14

EFFECTIVENESS OF MYANMAR MASSOTHERAPY IN THE MANAGEMENT OF SHOULDER PAIN *(AMSA SHULA)* DUE TO *SANDHIGATA VATA*

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ABSTRACT

This study was aimed to find out the effect of Myanmar massotherapy in the management of shoulder pain (*Amsa shula*) patients due to *sandhigata vata"* admitted to in–patient department and out–patient department, Traditional Medicine Teaching Hospital, Mandalay. Shoulder pain due to *sandhigata vata* is a common condition noticed by many individual over 50 years in their daily life. And it's also common clinical problem in traditional medicine. Study design of this study was hospital based quasi–experimental study. The study period was started from 1st September 2014 to 31st August 2015. Total 40 subjects after getting informed consent who were chosen according to the inclusion criteria, and radiological assessment (X ray of shoulder joint) was carried out in patients for exclusion criteria. Myanmar massotherapy is pressing manipulation, kneading manipulation and grasping manipulation that are performed by the thumb with index and middle fingers. The treatment duration of this study for each patient was 21 days and registered patients of shoulder pain were prescribed for oral administration of TMF 33 in tablet form (2 g) two times per day with warm water after having meal for 21 days. The effectiveness of Myanmar massotherapy was measured with pain, nerve pain, tenderness, crack, inflammation and range of movements (abduction, flexion, external rotation and internal rotation) by using goniometer on day 7, day 14 and day 21. Statistical analysis on paired t–test and General Linear Model method was done by using SPSS stastistics (version 21). Effect of Myanmar massotherapy had relieved from pain 62% (p = 0.000), nerve pain 48% (p = 0.000), tenderness 61% (p = 0.000), inflammation 33% (p = 0.000), abduction 56% (p = 0.000), flexion 52% (p = 0.000), external rotation 50% (p = 0.000) and internal rotation 45% (p = 0.000). There was no significant in crack. Out of 40 patients after completion of treatment 2 (5%) patients were marked improvement, 31(77.5%) patients were moderate improvement and 7 (17.5%) patients were mild improvement. There were not any patients in cure and unchange improvement level. Base on the finding results, it can be stated that Myanmar massotherapy can be provided to get better outcome in the management of shoulder pain due to *sandhigata vata*.

THE EFFECTIVENESS OF GREEVE VASTI, UPANAHA SWEDA AND ORAL MEDICATION IN CERVICAL SPONDYLOSIS PATIENTS

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ABSTRACT

The present study was aimed to find out the effectiveness of Greeva vasti , Upanaha Sweda and oral Medication in cervical spondylosis patients who were attended to Out Patient department and In patient Department, (100) Traditional Medicine Hospital, Nay Pyi Taw. Study design was hospital based clinical study carried out from 17 November 2017 to 29 April 2018. In this Study, 30 patients were participated and pain, radial pain, stiffness, headache, dizziness, tenderness and range of motion were assessed and recorded results were taken on day 0, day 12, day 24 and day 36 and compared with Chisqure–test by using SPSS software version 21. The treatment showed significantly decrease in pain, in stiffness, in radial pain, and numbness, in dizziness and headache, in tenderness. In the comparison in range of cervical movement, the finding showed significantly improved in the flexion, in extension, left rotation, right rotation and left bending, in right bending . There was no obvious side effect in participated patients during the study period. The obtained results were shown that statistically effectiveness of Greeva vasti, Upanaha sweda, and oral medication in cervical spondylosis patients. In conclusion, these findings it can be used as the supportive data for the effect of Greeva vasti, Upanaha Sweda and oral Medication in cervical spondylosis patients

Keywords : Greeva vasti, Upanaha Sweda, Medication, Cervical spondylosis.

NUTRITIONAL VALUES AND CHEMICAL CONSTITUENTS OF *ANADARA BRUGHTONII* AND *CRASSOSTEA GIGAS* USED IN TRADITIONAL MEDICIN IN MYANMAR

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ABSTRACT

Shells of *Anadara broughtonii* and *Crassostrea gigas* were tested for the presence of macroelements, microelements, toxic elements and proximate analysis were also determined. According to the chemical analysis showed that the contents of calcium was 52.75±0% and magnesium was 1.1±0.1 % in *Anadara broughtonii,* calcium 54±0% and magnesium 3.2311±0 % in *Crassostrea gigas* respectively. Proximate analysis showed that *Anadara broughtonii* and *Crassostrea gigas* contained moisture 0.28±0.01 % and 0.24±0.01 %, ash 97.75±0.004% and 97.16±0.01%, water soluble ash 76.75±0% and 72.44±0%, acid insoluble ash 0.20±0% and 1.51±0%, protein 0.2±0.01% and 0.58±0.01%, fat 0.75±0.03%, 0.54±0.01% and fibers 2.5±0.01% and 1.93±0.01% respectively. Proximate analysis showed that the considerable amounts of fibers were present and high quantities of ash and calcium were found in these samples. The cadmium and lead contents were found to below levels. Arsenic and mercury were not found in these samples. Moreover, mineral and element contents were reasonable concentration in these animal parts. This finding indicated that these animal parts may be used safety in the traditional medicine.

ANTIBACTERIAL ACTIVITY OF TUBEROUS ROOT EXTRACTS OF *STEMONA COCHINCHINENSIS* GAGNEP. (ဂုံသမျှား)

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ABSTRACT

Bacterial infections are one of the most prominent causes of chronic diseases and physical disabilities around the world. Since the antibiotic resistance and multidrug resistance microorganisms have developed, various species of plants have been screened for antibacterial activity in an attempt to replace the synthetic chemical drugs currently being used. Among them, *Stemona cochinchinensis* Gagnep. is a valuable medicinal plant which root is used as antiseptic in skin infection such as wounds and burns in Myanmar traditional medicine. This study aimed to determine the qualitative phytochemical constituents and antibacterial activity of the various extracts of this tuberous roots. The preliminary phytochemical constituents of aqueous, ethanolic and methanolic extracts were analysed by the method of Raaman (2006). In phytochemical screening, it was observed that alkaloids, polyphenol, steroids, amino acids, carbohydrates and tannins are present in all three extracts. The different concentrations of aqueous, ethanolic and methanolic extracts were assayed against *Staphylococcus aureus* (ATCC 25923), *Pseudomonas aeruginosa* (ATCC 27853) and *Escherichia coli* (ATCC 25922) with agar dilution method and disc diffusion method. Cefotaxime(30 µg/ml) was used as standard drug for both gram positive and gram negative bacteria. The findings from the agar dilution method showed no antibacterial activity against these microorganisms up to concentration of 500 µg/ml. In disc diffusion method, it was indicated that ethanolic and methanolic extracts possessed antibacterial activity against *S. aureus* with significant dose response relationship ($r = 0.892$, $p < 0.05$) and ($r = 0.894$, $p < 0.05$) respectively. These extracts exhibited antimicrobial activity against *S.aureus*, AI = 0.48 and AI = 0.40 at 5 mg/disc in comparing with cefotaxime(30 µg/ml). Therefore, this study proved that the tuberous roots of this plant had potential for the treatment of bacterial diseases such as gram positive bacteria to develop a new antibacterial drug.

INVESTIGATION OF SOME COMPOUNDS AND ANTIOXIDANT ACTIVITY OF MYANMAR AMBER

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ABSTRACT

In the present study, amber was extracted with 97% ethanol and experiments were carried out. The phenolic compounds have a particularly strong antioxidant effect. Therefore, the total phenolic content was determined by using Folin–Ciocalteu phenol reagent colorimetric (ISO 14502–1:2005–E) method. The total phenolic content of amber was 2.3%.When amber extract was analyzed to know the active compound of amber by thin layer chromatography method,the R_f values of active compound was found to be 0.05 and 0.71 which were identical with the reference standard of succinic acid. The antioxidant activity was tested by of 2,2–Diphenyl 1–picrylhydrazyl (DPPH) free radical scavenging assay in this research. The results of antioxidant activity of amber showed 17.34% in the highest concentration of 100µg/ml. IC_{50} value of 97% ethanol extract of amber and standard control (L– ascorbic acid) were 279.75µg/mL and 7.5µg/mL.

Keywords: Amber, Folin – Ciocaltec method, Phenol, Succinic acid, DPPH, $IC_{50.}$

STUDY ON SOME CHEMICAL ANALYSIS OF *TERMINALIA CATAPPA* L. (BANDA) SEED AND ITS EXTRACTED BANDA SEED OIL

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ABSTRACT

In the present work, *Terminalia catappa* L. (Banda) was selected for its popular uses in medicinal purposes and commercial food products. The study of traditional medicinal plants and their therapeutics play a very important role in health care system of Myanmar because the most of Myanmar people still rely on traditional medicine. The aim of the study is to investigate on the chemical analysis of *Terminalia catappa* (Banda) seed and its extracted Banda seed oil. The sample was collected from Hinthada Township, Ayeyarwady Region and it was identified at Department of Botany, Hinthada University. At first, preliminary phytochemical tests have revealed that the absence of cyanogenic glycosides in the sample according to test tube method. By AOAC method, the collected fruit sample was found to contain 4.05 % of moisture, 1.61 % of ash, 21.62 % of crude protein, 4.94 % of crude fibre, 51.76 % of crude fat, 16.02 % of carbohydrate and 616.4 kcal/100 g of energy value based on dried sample. Ascorbic acid content in collected sample was done by iodometric titration and found to be 19.81 mg per 100 g fresh weight of sample. Banda seed oil of *Terminalia catappa* seed was extracted by hydrodistillation method with the use of Clevenger apparatus. It was found that Banda seed oil, pale yellow oil (15.09 g, 30.18 %) was obtained as hydrosol. Then, some chemical analysis of Banda seed oil was assessed by AOAC method and found to be iodine value ~ 57.55 %, peroxide value~1.99 mg/1000 g, acid value ~ 8.30 mg KOH/g, free fatty acid ~ 4.15 %, specific gravity ~ 0.91, moisture ~ 0.41 % and no rancidity. From the results of present study, it was found that *Terminalia catappa* (Banda) seed could be applied as the local health remedy to the local indigenous communities of our country. In addition, the current study showed that Banda seed possesses the valuable nutrients besides no toxicity in it. Therefore, it can contribute to public health and also could be suggested that Banda seed may be used as a potential food source.

Keywords: *Terminalia catappa* seed, nutrients, Banda seed oil, chemical analysis, food source

PHARMACOLOGICAL ACTIVITIES AND ISOLATION OF SOME ORGANIC COMPOUNDS ON THE SEED OF *HYGROPHILA PHLOMOIDES* NEES (MIGYAUNG–KUN–BAT)

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ABSTRACT

The selected medicinal plant, *Hygrophila phlomoides* Nees (migyaung–kun–bat) seed was chosen for the investigation of the physicochemical properties and some pharmacological actions and the isolation of some organic compounds. Preliminary phytochemical investigations on dried powder of *H. phlomoides* Nees seed indicated the presence of α–amino acids, carbohydrates, glycosides, flavonoids, phenolic compounds, saponins, steroids, terpenoids and tannins were present in sample. The elemental analysis of *H. phlomoides* Nees sample was carried out by EDXRF method. By EDXRF method, it was found that calcium was the most abundant element and no heavy toxic elements were detected. In the *H. phlomoides* Nees seed, Ca (0.67 %), K (0.48 %), P (0.34%), Si (0.27 %), S (0.26%) and Fe (0.033 %) were found to be present.Nutritional values such as moisture content (10.00%), ash content (5.00%), protein content (30.63%), fiber content (32.30%), fat content (7.10%), carbohydrate content (14.98 %) and energy value (246.30(kcal / 100g)) were also determined on the *H. phlomoides* Nees seed. In antimicrobial activity of the different crude extracts were screened by using agar well diffusion method. Ethyl acetate extracts show more significant antimicrobial activity (zone of inhibition ranged 40 mm) than that of other crude extracts. The PE extract exhibited the inhibition zone ranging between 18 to 22 mm testing with all species of microorganism. MeOH crude extract from *H. phlomoides* Nees seed was investigated by using rapid screening of antioxidant activity by dot–blot and DPPH staining method. MeOH extracts of *H. phlomoides* Nees seed showed potent activity at dry matter amount (3.125 µg to 400µg dry matter/mL). Two isolated compounds, MKB–1 (terpenoid) and MKB–2 (lupeol) were isolated from ethanol extract of *H. phlomoides* Nees seed. Isolated compounds were identified by TLC, UV and FTIR. Above the scientific finding, *H.phlomoides* seed can be used for antimicrobial and antioxidant agents in traditional medicine.

***Keywords*:** *Hygrophila phlomoides* Nees, Antimicrobial activity, Antioxidant activity

ANTIBACTERIAL ACTIVITIES OF LEAVES EXTRACTS OF *DESMODIUM GANGETICUM* (L.) DC. (KYAE MI PHO)

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ABSTRACT

The antibacterial activity of aqueous, ethanolic, ethyl acetate and petroleum ether extract of leaves of *D. gangeticum* (L.) DC. was determined by microdilution method with resazurin. In addition, phytochemical constituents, physico–chemical properties, elemental analysis, heavy metal contents of this plant was studied. *D. gangeticum* (L.) DC. (Family. Fabaceae) is commonly Kyae mi hpo in Myanmar. The plant is diffusely branched under shrub, provided with soft grey hairs. This plant possesses valuable source of natural compounds and traditionally used in therapeutic application for various ailments. Aqueous, ethanolic, ethyl acetate and petroleum ether extracts of leaves showed efficient antibacterial activity against pathogens gram–positive bacteria; *Enterococcus faecalis*, *Staphylococcus aureus, Bacillus cereus* and gram–negative bacteria; *Eschericha coli*. Ethanolic extracts of almost all samples showed better activity than other extracts in inhibition growth of bacteria. The MIC ranged from 7.81mg/ml to 125 mg/ml and MBC 62.5 mg/ml to >250 mg/ml was recorded. The phytochemical screening of this plant revealed the presence of the phytoconstituents such as flavonoids, glycosides, phenolic compounds, polyphenols, saponins, amino acid, carbohydrates, saponin, terpenoids and tannins were present. The physico–chemical characterization showed that water soluble ash was found more than acid insoluble ash. The studied species showed more amounts of aqueous soluble compounds than ethanol, ethyl acetate and pet ether soluble compounds. The macroelements; the content of potassium was mostly found. The second largest was calcium and the third was sulphur. The microelements; the most abundant compound was found to be iron. The heavy metals were not detected.

Keywords: *Desmodium gangeticum,* Antibacterial, Phytochemical, Physicochemical, Elemental.

ANTIBACTERIAL ACTIVITIES OF LEAVES EXTRACTS OF *DENDROLOBIUM TRIANGULARE* (RETZ.) SCHINDL.(LAUK–MIN–MWE–BET)

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ABSTRACT

Plants are the basic of both traditional medicines and modern drug discoveries. The plants are used in traditional medicines worldwide and majority of them are being used in Asian medicine. *D. triangulare* has been found in numerous therapeutic applications in traditional medicines such as Myanmar traditional medicine, Chinese traditional medicine and Ayurveda. *D. triangulare* is a perennial non–climbing shrub of the Fabaceae family. It is commonly known as Lauk min mwe bet in Myanmar (Kress *et al*. 2003). In Myanmar traditional medicine, this plant is commonly known as Kyae–mee– pho. This plants are used in the Indian system of medicine as a cure for dysentery, in bronchial spasms and coughs, as a stimulant (Ghosal & Mehta 1973). In Chinese traditional medicine, leaf is used to treat diarrhea. The root is taken for sore throat and with wine is administered for hemoptysis. The root and leaf paste is applied for internal injury (Ma *et al*. 2011). This plant is used in Myanmar traditional medicinal applications, such as tonic and abcesses. Phytochemical constituents were accomplished by Harbone and Raaman methods. Phytochemical constituents showed that flavonoids, glycosides, phenolic compounds, polyphenols, saponins, amino acid, carbohydrates, saponin and tannins were present while alkaloids and cyanogenic substance were absent. In physico–chemical properties, pH value (6.43%), total ash value (6.8%), acid insoluble ash value (3.35%) and water soluble ash value were (93.2%.) were found. Aqueous, ethanol, ethyl acetate and pet ether extractable values were found 20%, 9%, 1.88% and 0.76% respectively. Elements from this plant were analyzed by Energy Dispersive X–Ray Fluorescence (EDXRF) Spectrophotometer. The macroelements; potassium, calcium, Sulphur and microelements; iron, manganese, zinc, copper were present. Then, the leaves were analysed by Atomic Absorption

Spectroscopy (AAS) to know the amount of some heavy metals elements. According to AAS, the heavy metals were not detected**.** Microdilution method were used to test the antibacterial activity of aqueous, ethanolic, ethyl acetate and petroleum ether extracts of this plant against four pathogenic bacteria. The MIC values were ranged from 2.5 to 160 mg ml^{-1} and MBC values were 2.5 to 160 mg ml^{-1} in *D. triangulare* (Retz.) Schindl.

The aim of our research may provide a promising antibacterial agent for therapeutic applications against drug–resistant bacteria.

Keywords: *Dendrolobium triangulare,* Phytochemical, Physicochemical, Elemental, Antibacterial.

DETERMINATION OF CHEMICAL CONSTITUENTS FROM THE FRUIT, STEM AND FLOWER OF *MUSA SAPIENTUM* L. VAR. PARADIFIACA (SHWE NI)

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3. Department of Chemistry, Sagaing University

ABSTRACT

This research was conducted to evaluate the mineral compositions and some nutritional values present in *Musa sapientum* L. var. paradifiaca (Shwe ni) which has many applications in the traditional medicine and stem, flower, unripe and ripe fruit of this species were collected from Kyauk–se area, Myanmar . Chemical analyses were carried out not only on the fresh samples but also on the dried samples except ripe fruit. The investigation of moisture, ash and the nutritional values such as protein, carbohydrate and fiber contents were performed by their respective methods. Minerals constituents such as calcium (Ca), iron (Fe), potassium (K), magnesium (Mg), sodium (Na) and zinc (Zn) of *Musa sapientum* were determined by atomic absorption spectrometer (AAS) and phosphorus (P) was examined by UV visible spectrophotometer. Fresh ripe fruit is a rich source of potassium (417.4 mg/100g), fair sources of magnesium (40.4 mg/100g) and calcium (17 mg/100g) where as iron, sodium, magnesium and zinc indicate as minor constituents.

Keywords: Mineral constituents, nutritional values, atomic absorption spectrometer (AAS), UV visible spectrophotometer

OIL EXTACTION AND PHYSICOCHEMICAL ANALYSIS OF *PAYENA PARALLELLONEURA* KURZ SEEDS

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ABSTRACT

Plants source has been used as a folk medicine and pharmacopoeial drugs. *Payena parallelloneura* Kurz (Sapotaceae) is an economic plant growing throughout the subtropical region. The physico–chemical properties of oil are largely dependent on the nature of their constituents and this varies from oil to oil. This work was designed to carry out the characterization and identification of the extracted oil. The soxhlet extraction with n–hexane showed the oil content of *Payena parallelloneura* Kurz seeds was 47.5%.The physic–chemical properties of the extracted oil was also determined. The acid value obtained was 8.59 mg KOH/g. The peroxide value and iodine value were 2.58 meq/kg and 57.82 g I_2/ 100g. The determined saponification value was 190.26 mg KOH/g. The obtained specific gravity and refractive index were 0.910 and 1.4659. The fatty acid profile of the extracted oil was determined by GC–MS analysis. From the GC–MS analysis, the common fatty acids such as palmatic acid, stearic acid and oleic acid were observed. The result parameters suggest that the oil has the potential for domestic and industrial applications.

Keywords: *Payena parallelloneura* Kurz, physicochemical properties, GC–MS analysis

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ပို့စတာအကျဉ်းများ

ABSTRACTS OF THE POSTERS DISPLAYED

တိုင်းရင်းဆေးဝါးသုံးစွဲမှုကျိုးကြောင်းနှင့်ယှဉ် သတိပြု

မို့မို့အောင်၊ သန္တာခိုင်၊ သိန်းမြင့်၊ အေးကို၊ ဝင်းစိုး

ဆေးဝါးဗေဒဌာန၊ တိုင်းရင်းဆေးတက္ကသိုလ်

ပိုစတာအကျဉ်း

ယခုအခါ ပြည်သူလူထုအတွင်း၌ စံမမီတိုင်းရင်းဆေးဝါးများ၊ တိုင်းရင်းဆေးဝါးအတုများ၊ အနောက်တိုင်းဆေးရောနှောထားသော တိုင်းရင်းဆေးများကို သုံးစွဲလာမှု မြင့်တက်နေသည်ကို တွေ့ရှိရပါသည်။ ၎င်းဆေးဝါးများသုံးစွဲမှုကြောင့် ဘေးထွက်ဆိုးကျိုးအဖြစ် ရောဂါဝေဒနာများ ခံစားနေရသည်ကိုလည်း တွေ့ရှိနေရပါသည်။ တိုင်းရင်းဆေးပညာဦးစီးဌာနအနေဖြင့် ၎င်းဆေးဝါးများ ဈေးကွက်အတွင်းရောင်းချမှု မရှိစေရေးအတွက် အသိပညာပေး စစ်ဆေးခြင်းများကို စဉ်ဆက်မပြတ် ပြုလုပ်လျက် ရှိပါသည်။ တိုင်းရင်းဆေးဝါး သုံးစွဲသူများအား အသိပညာပေးခြင်းသည် ရေရှည်တွင် ထိရောက်မှုအရှိဆုံး နည်းလမ်းတစ်ခု ဖြစ်သည်ဟုယုံကြည်ပါသည်။ ဤသုတေသနပိုစတာသည် အရည်အသွေး စစ်မှန်ကောင်းမွန်ပြီး ဘေးဥပဒ်ကင်းကာ အကျိုးသက်ရောက်မှုရှိသော တိုင်းရင်းဆေးဝါးများကို အများပြည်သူတို့ ရွေးချယ်သုံးစွဲတတ် စေရန်နှင့် ပြည်သူ့ကျန်းမာရေးကို ဆိုးရွားစွာ ထိခိုက်စေနိုင်ပြီး သုံးစွဲရန်မသင့်သော တိုင်းရင်းဆေးဝါးများအကြောင်း အသိပညာပေးရန် ရည်ရွယ်၍ တင်သွင်းရခြင်းဖြစ်ပါသည်။

ANTI–INFLAMMATORY EFFECT OF AQUEOUS EXTRACT OF TMF–27 (*PYI–LOUN:–CHAN:–THA–HSEI:*) ON ALBINO MICE

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ABSTRACT

This investigation was performed to find out whether the freeze dried powder of aqueous extract of TMF–27 posses anti–inflammatory activity. The dried powder of TMF–27 was extracted with distilled water. In order to study the anti–inflammatory effect of freeze dried powder of aqueous extract of TMF–27, the experiment was carried out on 30 albino mice of both sexes. Digital plethysmometer was used to measure the volume changes of the paw edema. Inflammation was induced by subplantar injection of 0.1 ml of 1% λ–carrageenan in right hind paw of albino mice. Anti–inflammatory effect of freeze dried powder of aqueous extract of TMF–27 was investigated by using 3 doses levels, i.e, 150 mg/kg, 300 mg/kg, 600 mg/kg respectively. Significant anti–inflammatory effect was started to show with the median dose of the aqueous extract 300 mg/kg at 6 hour ($p < 0.05$) and the high dose of 600 mg/kg started at 2 hour up to 6 hour ($p < 0.05$ to $p < 0.01$) after λ–carrageenan injection. The positive control group (aspirin, 300 mg/kg) was started to show at 2 hour and 3 hour ($p < 0.01$), 4 hour and 5 hour ($p < 0.001$), and 6 hour ($p < 0.01$). Phytochemical constituents of freeze dried powder of aqueous extract of TMF–27 were alkaloids, flavonoids, glycosides, phenolic compounds, polyphenol, terpenoids, saponins, reducing sugar, amino acid, carbohydrates, tannins and starch. Cyanogenic glycosides were not detected. The result of this study supported that the freeze dried powder of aqueous extract of TMF–27 has potential anti–inflammatory effect and therefore it is possible to be used as anti–inflammatory drug in Myanmar Traditional Medicine.

Keywords: anti–inflammatory, TMF–27, λ–carrageenan, aspirin

VALUKA–SHWE–HSEI: AND ITS ACUTE AND SUB–ACUTE TOXICITY STUDY IN ALBINO RATS

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ABSTRACT

Valuka–Shwe–Hsei: (VSH) is mainly used in the treatment of asthma, leucorrhoea, scabies, eczema, impotency, fistula in ano, dysentery and as *Rasayana* drug in *Vijjadhara naya*. This drug was made up equal amount of purified mercury, tin, sulphur and ammonium chloride prepared by *Valuka yantra* method heating for 7 days. Elemental compositions were analyzed by WDXRF at Department of Geology, University of Mandalay. Acute and sub–acute toxicity studies were performed as per OECD test guidelines 425 and 407, respectively. In acute oral toxicity, animals were grouped into five with the delay at 550 mg/kg, 1750 mg/kg, 2000 mg/kg, 5000 mg/kg of drug and a control group. In sub–acute toxicity, five groups such as control, 15 mg/kg, 30 mg/kg, 60 mg/kg and delay group were assigned and performed for 28 days. In elemental analysis, SnO_2, Na_2O, Cl, SO_3, SiO_2, In_2O_3, Fe_2O_3 and P_2O_5 were detected in the drug. In the results of acute toxicity, there was no observed death or toxic signs and symptoms, no body weight changes and no abnormalities were observed on grossly and histopathological features. It was determined that the LD_{50} of VSH was greater than 2000 mg/kg in fasted male rats. In the repeated dose study, it was found that the body weights were reduced in all groups. Grossly, most of the lungs and liver tissues area show necrosis. The results showed that fibrosis in lungs, dilated sinusoid and inflammatory infiltrate inside sinusoidal capillaries in liver and disorganization of tubules and glomeruli in section of kidney tissue. It was concluded that although VSH was experimentally non–toxic in acute toxicity test, it is likely to be toxic and adverse effects in experimental doses according to sub–acute toxicity results. Therefore, it is suggested that further confirmation of experimental study with other methods and other heating duration should be carried out.

Keywords: *Valuka–Shwe–Hsei:* (VSH), elemental analysis, acute and sub–acute toxicity

သင်္ဘောမည်းပင်

သီရိလှိုင်[၁]၊ ခင်ရတနာကျော်[၂]၊ တင်စိမ်းမာ[၃]

၁။ သုတေသနနှင့်ဖွံ့ဖြိုးရေးဌာန၊ စက်ြာမင်းတိုင်းရင်းဆေးဝါးထုတ်လုပ်ရေး၊ ရန်ကုန်
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၃။ ရုက္ခဗေဒဌာန၊ ရန်ကုန်ပညာရေးတက္ကသိုလ်

ပိုစတာအကျဉ်း

မြန်မာ့တိုင်းရင်းဆေးဝါးများဖော်စပ်ထုတ်လုပ်ရာတွင် သင်္ဘောမည်းပင်ကို ဆေးဖက်ဝင်ပစ္စည်းတစ်ခုအဖြစ် အသုံးပြုပါသည်။ သဘာဝဆေးပင်များအနက် သင်္ဘောမည်းပင်သည် မြန်မာနိုင်ငံအနှံ့အပြားတွင် အလေ့ကျအဖြစ်လည်းကောင်း၊ စိုက်ပျိုးပင်အဖြစ်လည်းကောင်း ပေါက်ရောက်သောကြောင့် လူသိများပြီး အသုံးများပါသည်။ မြန်မာ့တိုင်းရင်းဆေးဝါးအဖြစ် သုံးစွဲကြသဖြင့် သင်္ဘောမည်းပင်၏ အဆိပ်သင့်စေသောသတ္ထုမာ (Heavy Metal) ပါဝင်မှု၊ လတ်တလော အဆိပ်သင့်မှု (Acute Toxicity)၊ သွေးအတွင်းအချိုခါတ် ကျစေသောအာနိသင် (Anti-hyperglycemic Activity) နှင့် ခါတ်တိုးဆန့် ကျင်အာနိသင် (Antioxidant Activity) တို့ကို စမ်းသပ်ပြီး ဆေးတောင့် (Capsule) ဖြစ်နိုင်မည့်နည်းလမ်းများကိုလည်း စမ်းသပ်ပါသည်။ သင်္ဘောမည်းပင်ကို အပင်မျိုးခွဲခြင်း (Identification) ပြုလုပ်ပြီး နောက် ရေတွင်ပျော်ဝင်ဆေးနှစ် (Aqueous Extract) ထုတ်ယူခြင်းကို ပြုလုပ်ပါသည်။ ရေတွင်ပျော် ဝင်ဆေးနှစ်ကို OECD ၄၂၃ နည်းလမ်းအတိုင်း ကြွက်ငယ်များတွင် စမ်းသပ်ရာ လတ်တလော အဆိပ်သင့်မှုမရှိကြောင်း တွေ့ပါသည်။ သွေးအတွင်းအချိုခါတ်မြင့်နေသော (Alloxan induced diabetes mice) ကြွက်ငယ်များတွင် ရေတွင်ပျော်ဝင်ဆေးနှစ် (500 mg/Kg) သည် သွေးအတွင်းအချိုခါတ် ကျဆင်းစေသော အာနိသင်ရှိကြောင်း တွေ့ပါသည်။ ရေတွင်ပျော်ဝင်ဆေးနှစ်ကို (2,2-diphenyl-1-picrylhydrazyl) DPPH အသုံးပြု၍ စမ်းသပ်ရာတွင် ခါတ်တိုးဆန့်ကျင်အာနိသင် ရှိကြောင်းတွေ့ပါသည်။ ဆေးတစ်တောင့် (၅၀၀ မီလီဂရမ်) သည် ရေတွင်ပျော်ဝင်ဆေးနှစ် (၁၉၉ မီလီဂရမ်)၊ ပြောင်းဖူးကော်မှုန့် (Corn Starch) (၂၉၉ မီလီဂရမ်) နှင့် Magnesium Sterate (၂ မီလီဂရမ်) ပါဝင်ပါသည်။ မြန်မာ့တိုင်းရင်းဆေးနည်းများကို အကျိုးပြုနိုင်ရန်အတွက် သုတေသနတွေ့ရှိချက်များကို တင်ပြပါသည်။

EVALUATION OF PHYTOCHEMICAL CONSTITUENTS, PROXIMATE COMPOSITIONS, MINERALS CONTENT AND ACUTE TOXICITY STUDY OF LEAVES OF *CARICA PAPAYA* L. (THIN BAW)

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ABSTRACT

Carica papaya L., belongs to family Caricaceae is commonly known as papaya in English, Thinbaw in Myanmar. It is widely found in Myanmar and all over the world. The present study was aimed to scientifically evaluate the phytochemical constituents, proximate compositions, minerals content and acute toxicity study of papaya leaves. Qualitative phytochemical investigation was carried by Harbone J.B (1998) and Raaman (2006), and papaya leaves contained alkaloids, α amino acid, carbohydrate, flavonoids, glycosides, phenols, protein, reducing sugar, saponins and tannins. The proximate compositions were done by AOAC (1990) guidelines, while mineral elements were measured by flame atomic absorption spectrophotometer. According to proximate compositions, moisture, ash, fiber, fat, protein and carbohydrate in papaya leaves were found to be 6.00, 12.14, 8.84, 5.13, 27.88, 40.01% respectively. Macrominerals (Ca, Mg, K, Na) content of papaya leaves were 1650.71±12.46, 67.83±0.16, 206.55±0.57, 54.66±0.65 ppm. Microminerals (Cr, Cu, Fe, Mn, Zn) content of papaya leaves were 2.01± 0.47, 10.43± 0.04, 84.71± 0.41, 73.40±0.23, 26.75 ± 2.73 ppm respectively. Toxic minerals, Cd was not detected and Pb content was 6.26± 1.24 ppm. All minerals content were within maximum permissible limits (WHO, 1996 , FAO/WHO, 2001, Ajasa, 2004 and WHO, 2005). Acute oral toxicity study was done in ICR mice by OECD 425 guideline (2008) and no acute toxic sign and lethality at the dose of 5000 mg/kg (LD_{50}>5000 mg/kg). These results indicated that, papaya leaves possessed the potential to provide essential nutrients with important minerals. Thus, papaya leaves can be used as not only food supplement but also alternate source of bio nutrient for human health. The results of current study gave scientific support in traditional medicine. And also recommended as a plant of phyto pharmaceutical importance and acute safe for consumption.

Keywords: Proximate Compositions, Minerals Content, Atomic Absorption Spectrophotometer, Acute Toxicity, and *Carica papaya* L.

နဝမအကြိမ် တိုင်းရင်းဆေးသုတေသနစာတမ်းဖတ်ပွဲတွင် ဆုရသူများ

<u>ဆုရပို့စတာများ</u>

အကောင်းဆုံးပို့စတာဆု

Effect of Myanmar Massotherapy in the Management of Neck Pain Due to *Sandhigata vata*

(ဝင့်သိဂီ၊ သိန်းဇော်လင်း၊ ရင်ရင်သီ၊ ဝင်းမြင့်၊ မောင်မောင်သက်၊ ကျော်ဦး)

ဒုတိယအကောင်းဆုံးပို့စတာဆု

နန္ဒင်းနှင့်နန္ဒင်းခါး

(သဲသဲအိစံ၊ တင်စိမ်းမာ၊ သီရိလှိုင်၊ ဝတ်ရည်ဝင်း၊ အိနန္ဒာမောင်၊ ဖူးပွင့်သူ၊ ဥမ္မာမြင့်)

တတိယအကောင်းဆုံးပို့စတာဆု

Acute Toxicity and Antidiarrhoeal Effect of Ethanolic Extract of "Le'– Htou' – Ka – La'– Hsei:" (လက်ထုတ်ကလာပ်ဆေး)

(မိုးမိုးအောင်၊ ကြည်ကြည်ဦး၊ အိအိထွေး၊ အေးနှင်းသွယ်၊ မဉ္ဇူတင်အောင်၊ သင်းလွဲဝင်း)

<u>ဆုရစာတမ်းများ</u>

သိပ္ပံသုတေသနအကောင်းဆုံး (ပထမ)ဆု––

Phytochemical Analysis and Toxicity Study of *Thway–Arr–Toe–Hsei:* (ASM–16) on Albino Rats

(နန်းအေးမိုးခိုင်၊ ဇင်မာလွင်၊ ခင်မိုးအောင်၊ ဝင်းယုအောင်၊ မဉ္ဇူတင်အောင်၊ ကြည်ကြည်ဦး၊ သင်းလွဲဝင်း)

သိပ္ပံသုတေသနအကောင်းဆုံး (ဒုတိယ)ဆု––

Determination of Antioxidant Activity and Acute Toxicity Study of Pericarp of *Garcinia mangostana* L. (မင်းဂွတ်သီးအခွံ) Tablet

(သိန်းမိ၊ ခင်တာရာမြင့်၊ သင်းထက်အောင်၊ ခင်ထက်ထက်အောင်၊ နွယ်နီစိုး၊ စုရည်ဝင်း၊ ခိုင်ခိုင်လွင်၊ မူမူစိန်မြင့်၊ ခိုင်ဇာပွင့်၊ ဘန်ရီ)

သိပ္ပံသုတေသနအကောင်းဆုံး (တတိယ)ဆု--

Antimicrobial Activity, Antioxidant Capacity and Total Phenolic Content of *Boscia variabilis* (Kurz) Collect & Hens (Tha–Mon)

(စန်းစန်းအေး၊ ဇင်သူခိုင်၊ နီနီသန်း)

သိပ္ပံသုတေသနအကောင်းဆုံး (တတိယ)ဆု--

GC–MS Analysis and Antioxidant Activity of Leaves of *Aegle marmelos* L. Correa ဥသျှစ်

(လဲ့လဲ့ဝင်း၊ အိအိထွေး၊ ခိုင်ခိုင်မာ၊ ခင်လေးစိန်၊ ကျော့ကျော့ခိုင်၊ ကြည်စန်း၊ ကျော်မင်းအောင်၊ အေးမင်းမော်၊ ခင်မျိုးမြင့်၊ ခင်ဖြူဖြူ)

တိုင်းရင်းသုတေသနအကောင်းဆုံးဆုရသူများ

တိုင်းရင်းသုတေသနအကောင်းဆုံး (ပထမ)ဆု--

Healing Effect of ATHANU TE' HPAYAUN: GYE'(အသားနုတက်ဖယောင်းချက်) with Adjuvant TMF Therapy on VRANA

(ခိုင်ဇာလင်း၊ ခင်ရတနာလှိုင်၊ သင်းသင်းတိုး၊ နုနုလွင်၊ အောင်ကျော်မင်း)

တိုင်းရင်းသုတေသနအကောင်းဆုံး (ဒုတိယ)ဆု--

Mapping Distribution of Medicinal Plants Commonly Used in Myanmar Traditional Medicine Formulations

(သိမ်းကျော်၊ ကြည်ကြည်ဦး၊ သိန်းမြင့်၊ သော်ဇင်၊ အိအိသန့်၊ ကျော်ဦး)

တိုင်းရင်းသုတေသနအကောင်းဆုံး (တတိယ)ဆု--

Combination Effect of PATRAPINDA SWEDA (HOT FOMENTATION) and Massotherapy on APABAHUKA (FROZEN SHOULDER)

(နှင်းယုမော်ထွေး၊ နိုင်ကီးမြူးမံ၊ နွဲ့နွဲ့ရီ၊ ဝင်းကို၊ မောင်မောင်သက်၊ ကျော်ဦး၊ သိမ်းကျော်)

ကျေးဇူးတင်လွှာ

ဒသမအကြိမ် တိုင်းရင်းဆေးသုတေသနစာတမ်းဖတ်ပွဲ

ကျင်းပနိုင်ရေးအတွက် ပံ့ပိုးကူညီပေးကြသည့်-

- ဂရိတ်ဝေါ တိုင်းရင်းဆေးဝါးထုတ်လုပ်ရေးလုပ်ငန်း
- ထွန်းရွှေဝါ တိုင်းရင်းဆေးဝါးထုတ်လုပ်ရေးလုပ်ငန်း
- ကေသီပန် တိုင်းရင်းဆေးဝါးထုတ်လုပ်ရေးလုပ်ငန်း
- မောရိယ တိုင်းရင်းဆေးဝါးထုတ်လုပ်ရေးလုပ်ငန်း
- မှန်ချို့ တိုင်းရင်းဆေးဝါးထုတ်လုပ်ရေးလုပ်ငန်း တို့အား

အထူးကျေးဇူးတင်ရှိပါကြောင်း မှတ်တမ်းတင်ဂုဏ်ပြုအပ်ပါသည်။

သုတေသနစာတမ်းဖတ်ပွဲကျင်းပရေးဦးစီးကော်မတီ