1. Anti-cancer activity of rutin encapsulated in low methoxyl pectin beads

2. Development of cream containing nanostructured lipid carriers loaded marigold (Tagetes Erecta Linn) flowers extract for anti-wrinkles application

3. Epidermal growth factor receptor mutation testing in Thailand: A cost-utility analysis

4. The effect of encapsulation on the in vitro anti-oxidative activity of rutin

5. Carbopol®-guar gum gel as a vehicle for topical gel formulation of pectin beads loaded with rutin

6. Handling time in economic evaluation studies

7. Cost-effectiveness analysis of pharmacogenetic-guided warfarin dosing in Thailand

8. Antioxidant activity of Rafflesia kerrii flower extract

9. Characterization of hydrodistillated pomelo peel oil and the enhancement of biological activities using microemulsion formulations

10. Antioxidant and anticancer activities from leaf extracts of four Combretum species from Northern Thailand

11. Effects of acacia grades, oil types and preparation methods on the formation and stability of oral emulsions

12. Stability enhancement of Celastrus paniculatus seed oil by loading in niosomes

13. Potent in vitro collagen biosynthesis stimulating and antioxidant activities of edible mushroom Volvariella volvacea aqueous extract

14. Validation of the Thai QOL-AD version in Alzheimer's patients and caregivers

15. Characterization of the mucilages extracted from hibiscus rosa-sinensis linn and hibiscus mutabilis linn and their skin moisturizing effect
16. Selection and characterization of probiotic lactic acid bacteria with heterocyclic amine binding and nitrosamine degradation properties

17. A novel moisturizer extracted from freshwater macroalga [rhizoclonium hieroglyphicum (C.agardh) k tzing] for skin care cosmetic

18. A potential synbiotic beverage from fermented red seaweed (Gracilaria fisheri) using Lactobacillus plantarum DW12

19. Nanoemulsion loaded with marigold flower extract (Tagetes Erecta linn) in gel preparation as anti-wrinkles cosmeceutical

20. Potential technique for tiny crystalline detection in lycopene-loaded SLN and NLC development

21. Inhibitory effect of turmeric curcuminoids on FLT3 expression and cell cycle arrest in the FLT3-overexpressing EoL-1 leukemic cell line

22. Suicide risk among Thai illicit drug users with and without mental/alcohol use disorders

23. Proximate analysis and oxidative stability of wax from the nuts of Krabok (Irvingia malayana)

24. Development of transdermal patch containing Longan seed extract

25. Development of Krabok (Irvingia malayana) wax as a suppository base

26. Curcumin nanoformulations: A review of pharmaceutical properties and preclinical studies and clinical data related to cancer treatment

27. A new concept for the treatment of atopic dermatitis: Silver-nanolipid complex (sNLC)

28. Quetiapine for acute bipolar depression: A systematic review and meta-analysis

29. Characterization of hypersensitivity reactions reported among Andrographis paniculata users in Thailand using Health Product Vigilance Center (HPVC) database

30. Development of mucoadhesive buccal films from rice for pharmaceutical delivery systems
Anti-cancer activity of rutin encapsulated in low methoxyl pectin beads

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ABSTRACT

Objective: This study was investigating the anti-cancer activity of rutin encapsulated in non-amidated low methoxyl pectin bead in various formulations with or without sorbitol and/or sodium bicarbonate (NaHCO3).

Methods: The rutin beads formulations including 3NA (3% Non-amidated LMP), 3NA15Sor (3% Non-amidated LMP with 15% Sorbitol), 3NA1Bica (3% Non-amidated LMP with 1% NaHCO3) and 3NA15Sor1Bica (3% Non-amidated LMP with 15% Sorbitol and 1% NaHCO3) were prepared and the in vitro anti-cancer activities in 3 human cancer cell lines were investigated.

Results: All beads were oblong or spherical shape with around 600 μm size. 3NA15Sor1Bica rutin bead composing both sorbitol and NaHCO3 exhibited higher cytotoxic activity with cancer cell viability were 51.41 ± 7.01 and 55.12 ± 3.96% on HT-29 and KB cells, respectively. There was no significant different (p>0.05) of cell viability between all bead formulation for HepG2 cells.

Conclusion: These results confirmed that encapsulation of rutin in pectin beads exhibited their anti-cancer activity and can be applied for further human cancer treatment formulation.
Development of cream containing nanostructured lipid carriers loaded marigold (Tagetes Erecta Linn) flowers extract for anti-wrinkles application

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ABSTRACT

Objective: In this study, Marigold flower extracts were entrapped in nanostructured lipid carriers (NLCs), incorporated into cream base to obtain Marigold nanocosmeceutical cream and tested for anti-wrinkles capability. Methods: The ethyl acetate extract (EA) and semi-purified fraction (F_9) with high antioxidant activity and total phenolic content were selected for loading in the stable NLCs. Then their characterization, antioxidant activity and stability test were investigated and also the determination for skin irritation as well as anti-wrinkles capability in healthy volunteers. Results: The results demonstrated the particle size of the selected ME-NLCs was in range 160 to 220 nm and showed good physical stability at 90 days after preparation. All of ME-NLCs containing creams exhibited no skin irritation in healthy volunteers. The wrinkles parameters evaluated by Skin Visiometer SV600Ò in 25 healthy volunteers after using creams containing ME-NLCs were significantly (p
Epidermal growth factor receptor mutation testing in Thailand: A cost-utility analysis

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ABSTRACT

Objective: To evaluate the cost utility of epidermal growth factor receptor (EGFR) testing plus first-line gefitinib treatment in patients with activating EGFR mutations in Thailand. Methods: The study used a decision tree model considering the provider's perspective. Direct medical costs were included and based on a local Thai database. Effectiveness was measured as quality-adjusted life-year and based on randomized controlled trials. Incremental cost-effectiveness ratio was calculated and presented in 2012. A series of one-way sensitivity analyses were conducted. Results: We found that the EGFR testing plus first-line gefitinib alternative gained 0.03 quality-adjusted life-year more, but 62,540 Thailand baht (US $2082.58) less total costs compared with the no-testing alternative. The results were robust when varying most variables in the model except for the duration of gefitinib treatment with activating EGFR mutation, the duration of chemotherapy treatment with activating EGFR mutation, and the utility of second-line chemotherapy. Conclusions: EGFR testing should be considered before administering EGFR tyrosine-kinase inhibitor such as gefitinib as first-line treatment in patients with non-small cell lung cancer in Thailand where the incidence of EGFR mutation is high. © 2014.
The effect of encapsulation on the in vitro anti-oxidative activity of rutin

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ABSTRACT

Objective: This study was investigating the effect of encapsulation on the in vitro anti-oxidative activity of rutin. Methods: Rutin encapsulated in non-amidated low methoxyl pectin bead in various formulations with or without sorbitol and/or sodium bicarbonate (NaHCO3 Results: The rutin encapsulated in 3NA15Sor1Bica (3% non-amidated LMP with 15% sorbitol and 1% NaHCO) were prepared as well as in vitro anti-oxidative assays including 2,2-diphenyl-1-picrylhydrazyl (DPPH) radical scavenging, chelating, lipid peroxidation inhibition and 2,2\'-azinobis-3-ethylbenthiazoline-6-sulfonic acid (ABTS) radical cation decolorization were investigated. Conclusion: The results from this study can be applied for the further development of the encapsulation formulation by adding the suitable proportion of sorbitol and NaHCO) beads showed anti-oxidative activity higher than the other formulations on DPPH radical scavenging (84.00 ± 4.47%), chelating (74.11 ± 4.29%) and ABTS radical cation decolorization (80.04 ± 7.93%) activities. In order to maintain the activities of encapsulated compounds.
Carbopol®-guar gum gel as a vehicle for topical gel formulation of pectin beads loaded with rutin

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ABSTRACT

Objective: The aim of this study was to develop suitable pharmaceutical gel formulations of pectin beads using semisynthetic celluloses or synthetic carbomers as a gelling agent.

Materials and Methods: Low methoxyl pectin (LMP) beads loaded with rutin composing 3% non-amidated LMP, 15% sorbitol and 1% sodium bicarbonate with 2% w/v of rutin were prepared, characterized, incorporated in various pharmaceutical gel bases and evaluated for rabbit skin irritation by close patch test.

Results: Rutin wetted bead formulation which showed spherical shape (around 700 μm), high rutin encapsulation efficiencies (82.02±0.91%), low conductivity (900 ΩS at 30 minutes) and faster rutin release (more than 80% in 30 minutes) was selected to incorporate in gel. The wetted rutin beads exhibited good stability (beads suspended in gel without breaking or gel color changing) in the gel composed of 0.4% w/v Carbopol® Ultrez 21 with 0.04% w/v guar gum at pH 5.0.

Conclusion: Rutin wetted beads in developed pharmaceutical gel formulation showed higher percentages of rutin remaining when stored at room temperature (27±2°C) than non-loaded rutin of about 1.53 times and gave no irritation in rabbit skin irritation test, however, the safety on human skin applications should be confirmed. © 2014 Asian Journal of Pharmaceutical and Clinical Research. All rights reserved.
Handling time in economic evaluation studies

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ABSTRACT

The discount rates and time horizons used in a health technology assessment (HTA) can have a significant impact on the results, and thus the prioritization of technologies. Therefore, it is important that clear guidance be provided on the appropriate discount rates for cost and health effect and appropriate time horizons. In this paper, we conduct a review of relevant case studies and guidelines and provide guidance for all researchers conducting economic evaluations of health technologies in the Thai context. A uniform discount rate of 3% is recommended for both costs and health effects in base case analyses. A sensitivity analysis should also be conducted, with a discount range of 0-6%. For technologies where the effects are likely to sustain for at least 30 years, a rate of 4% for costs and 2% for health effects is recommended. The time horizon should be long enough to capture the full costs and effects of the programs.
Cost-effectiveness analysis of pharmacogenetic-guided warfarin dosing in Thailand

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ABSTRACT

Introduction Pharmacogenetic (PGx) test is a useful tool for guiding physician on an initiation of an optimal warfarin dose. To implement of such strategy, the evidence on the economic value is needed. This study aimed to determine the cost-effectiveness of PGx-guided warfarin dosing compared with usual care (UC). Methods A decision analytic model was used to compare projected lifetime costs and quality-adjusted life years (QALYs) accrued to warfarin users through PGx or UC for a hypothetical cohort of 1,000 patients. The model was populated with relevant information from systematic review, and electronic hospital-database. Incremental cost-effectiveness ratios (ICERs) were calculated based on healthcare system and societal perspectives. All costs were presented at year 2013. A series of sensitivity analyses were performed to determine the robustness of the findings. Results From healthcare system perspective, PGx increases QALY by 0.002 and cost by 2,959 THB (99 USD) compared with UC. Thus, the ICER is 1,477,042 THB (49,234 USD) per QALY gained. From societal perspective, PGx results in 0.002 QALY gained, and increases costs by 2,953 THB (98 USD) compared with UC (ICER 1,473,852 THB [49,128 USD] per QALY gained). Results are sensitive to the risk ratio (RR) of major bleeding in VKORC1 variant, the efficacy of PGx-guided dosing, and the cost of PGx test. Conclusion Our finding suggests that PGx-guided warfarin dosing is unlikely to be a cost-effective intervention in Thailand. This evidence assists policy makers and clinicians in efficiently allocating scarce resources. © 2014 Elsevier Ltd. All rights reserved.
Antioxidant activity of Rafflesia kerrii flower extract

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ABSTRACT

Rafflesia kerrii has been used in Thai traditional remedies for treatment of several diseases. However, scientific data particularly on biological activities of this plant is very rare. The present study explores an antioxidant activity of R. kerrii flower (RKF). Extracting solvent and extraction procedure were found to play an important role on the activity of RKF extract. The extract obtained from water-ethanol system showed higher antioxidant activity than that from water-propylene glycol system. Fractionated extraction using different solvents revealed that methanol fractionated extract (RM) possessed the highest antioxidant activity with Trolox equivalent antioxidant capacity (TEAC) and inhibitory concentration of 50% inhibition (IC50) values of approximately 39 mM/mg and 3 ?g/mL, respectively. Phytochemical assays demonstrated that RM contained extremely high quantity of phenolic content with gallic antioxidant equivalent (GAE) and quercetin equivalent (QE) values of approximately 312 mg/g and 16 mg/g, respectively. Ultraviolet-visible spectroscopy (UV-VIS) and high-pressure liquid chromatography (HPLC) indicated that gallic acid was a major component. RM which was stored at 40°C, 75% RH for 4 months showed slightly significant change (p < 0.05) in phytochemical content and antioxidant activity with zero order degradation. The results of this study could be concluded that R. kerrii flower was a promising natural source of strong antioxidant compounds.
Characterization of hydrodistilled pomelo peel oil and the enhancement of biological activities using microemulsion formulations

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ABSTRACT

Objective: The present study aims to investigate the compositions and biological activities of essential oil extracted from pomelo peel and develop into microemulsions. Methods: Four subspecies of pomelo including Kao-Namphung (KN), Kao-Puang (KP), Kao-Tang-Gwa (KT), and Kao-Yai (KY) were subjected to the hydrodistillation to yield essential oils. The constituents of each oil was analyzed by GC-MS. Radical scavenging activities were determined by ABTS and DPPH assays, whereas, lipid antioxidant activity was determined by linoleic acid peroxidation assay. Antityrosinase activity and safety on human PBMCs were also investigated. Pseudoternary phase diagrams were constructed to reveal the effects of each compositions on the microemulsion regions. The microemulsion was formulated and characterized for the particle size, rheological behavior and biological activities. Results: Limonene was the major constituent in KN, KP, KT, and KY oil which was detected up to 86.19%, 85.76%, 79.36%, and 80.20%, respectively. Among four oils, KT oil exhibited the highest radical scavenging, antioxidant and antityrosinase activities. The MTT assay revealed that KT oil had no toxicity on human PBMCs. The microemulsion formulation (ME) containing 15% KT, 36% Tween 20, 9% PEG 400, and 40% water, were formulated and characterized. ME was transparent liquid with the particle size of 90.28 ± 1.60 nm. ME exhibited the Newtonian flow behavior with low viscosity (16.78 ± 0.12 Pas). In a comparison with KT oil, ME show significant higher radical scavenging and antioxidant activities (p
Antioxidant and anticancer activities from leaf extracts of four Combretum species from Northern Thailand

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ABSTRACT

Four Combretum species (Combretaceae) from northern Thailand (Combretum deciduum, Combretum griffithii, Combretum latifolium and Combretum quadrangulare) were tested for antioxidant and anticancer activities. Antioxidant activities were assessed by ABTS and DPPH radical scavenging capacity methods. Anticancer activity was tested against three cancerous human cell lines (KB, MCF7 and NCI-H187). All methanolic leaf extracts showed antioxidant activities with the ABTS and DPPH methods. The methanolic leaf extracts of C. deciduum inhibited KB-oral cavity and MCF7-breast cancer cell lines, C. latifolium inhibited MCF7-breast cancer cell line and C. quadrangulare inhibited KB-oral cavity and NCI-H187-small cell lung cancer cell lines. However, the methanolic leaf extracts of C. griffithii were inactive against all three cell lines. All methanolic leaf extracts exhibited non-cytotoxicity to Vero cell lines.
Effects of acacia grades, oil types and preparation methods on the formation and stability of oral emulsions

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ABSTRACT

This study aimed to investigate effects of three parameters, i.e., acacia grades (Acacia BP and spray-dried acacia in original and grinded forms), oil types (mineral oil and castor oil), and preparation methods of primary emulsion (wet gum method and dry gum method), on formation and stability of oral emulsions. It was found that particle aggregation of acacia and high viscosity of oil negatively affected emulsion formation by dry gum method. Wet gum method successfully produced primary emulsions more than dry gum method. The pH values of the obtained emulsions were in the range of 4.56-4.96. All emulsions possessed pseudoplastic flow and their viscosity was similar (p > 0.05). The results of stability test indicated that the studied parameters interferingly influenced on creaming of the emulsions. Storage of the emulsions under freeze-thaw condition did not cause changes in pH and rheological pattern; however, viscosity tended to decrease (p
Stability enhancement of Celastrus paniculatus seed oil by loading in niosomes

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ABSTRACT

Objective: To investigate the bioactive compounds, biological activities and also develop the stability enhancement system for bioactive compounds in Celastrus paniculatus seed oil (CPSO) Method: This study has investigated the bioactive compounds including fatty acid profile and total phenolic content, antioxidative and tyrosinase inhibition activities of CPSO. Then, various blank niosomes formulations were prepared. The stability of CPSO was enhanced by loading CPSO in niosomes, CPSO loaded niosomes were determined their physical properties such as size, zeta potential and chemical stability of oleic acid. Results: CPSO gave not only high content of fatty acids especially cis-9- oleic acid (43.99 % w/w) but also the total phenolic compounds, ?-tocopherol and ?-tocopherol that played an important role for the tyrosinase inhibition activity. CPSO exhibited superior tyrosinase inhibition activity than the standard ascorbic acid, kojic acid and arbutin. The maximum loading of the CPSO in selected niosomes (1:1 molar ratio of Tween61:cholesterol) was 2.00 % w/v with the average particle size of loaded niosomes about 230 nm and zeta potential of -46 mV. In the stability study, the CPSO loaded niosomes showed higher oleic acid content than CPSO solution indicating the substance protection after loading in niosomes after 3 months storage. Conclusion: Niosomes loaded with CPSO appeared to be a suitable method for the stability enhancement of the CPSO bioactive compounds because of not only the low toxicity, biodegradable, biocompatible, non-immunogenic but also skin penetration enhancer of niosomes as well.

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Potent in vitro collagen biosynthesis stimulating and antioxidant activities of edible mushroom Volvariella volvacea aqueous extract

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ABSTRACT

Beside Thai herbs and spices, several mushrooms are used in Thai cuisine such as straw mushroom (Volvariella volvacea) in Tom Yam Kung. Objective: To investigate the in vitro collagen biosynthesis stimulating and antioxidant activities of edible mushrooms which are common use as Thai food ingredient including V. volvacea collected from northern Thailand. Methods: The 11 selected mushrooms were extracted by three extraction methods including the hot (HW) and sonicated (SW) aqueous and the macerated ethanolic (ME) processes. These extracts were tested for antioxidative activity (including DPPH radical scavenging, metal chelating and lipid peroxidation) and in vitro collagen biosynthesis stimulating activities. Results: The sonicated aqueous extracts of V. volvacea (VV SW) not only showed the highest total phenolic (6.68 mg GAE) and polysaccharide contents (0.069 mg GLU) but also gave the highest DPPH radical scavenging, lipid peroxidation inhibition and collagen biosynthesis stimulating activities with the relative amount of the collagen biosynthesis stimulation of 146.77±13.20% of negative control which was significantly higher than standard ascorbic acid at about 1.14 times. Conclusion: This present study has suggested the sonicated aqueous extracts of V. volvacea to be developed as a functional food or cosmeceutical product with the potent in vitro collagen biosynthesis stimulating and antioxidant activities which can be promoted the traditional ingredient for Thai cuisine recipes as well.
Validation of the Thai QOL-AD version in Alzheimer's patients and caregivers

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ABSTRACT

Background: Quality of life (QOL) plays an important role in determining the improvement of patient care in Alzheimer's disease (AD). The simple and easily used Thai instrument for measuring QOL is still limited. Aims: This study aimed to translate the Quality of Life-Alzheimer's Disease (QOL-AD) scale original version into a Thai version and test its psychometric properties. Method: A Thai version of QOL-AD was translated following the sequential method. The validation was tested in 136 pairs of patients and their caregivers. Mild to moderate Alzheimer's patients were recruited from outpatient clinics at Chiang Mai Neurological Hospital and Chiang Mai Psychiatry Hospital from April to September 2012. Internal consistency, factor analysis, and construct validity were evaluated. Results: Internal consistency of Thai QOL-AD version was good for both patients (0.82) and caregivers (0.82). The results of factor analysis indicated three factors (physical and psychological well-being, social well-being, and close interpersonal relationships) in the patient group, while four factors were found (social well-being, functional ability, psychological well-being, and physical well-being) in the caregiver group. The scaling success in the patient group was around 80-83 per cent for convergent validity, and 70-83 per cent for discriminant validity. The caregiver group showed higher scaling success in convergent validity except for the psychological well-being domain. The scaling success of discriminant validity was around 44-83 per cent for caregivers. Conclusion: The findings of the study demonstrate a good reliability of a Thai QOL-AD version for both patient and caregiver groups. Validity, especially in the caregiver group, might need to be re-examined.
Characterization of the mucilages extracted from hibiscus rosa-sinensis linn and hibiscus mutabilis linn and their skin moisturizing effect

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ABSTRACT

Methods: The HR and HM leaves were extracted with distilled water to obtain their mucilages. Then dried and powdered. The physicochemical properties of the mucilage powders, including pH value, swelling index, loss on drying, solubility, total ash, acid-insoluble ash and carbohydrate content were evaluated. The polysaccharides were isolated from the mucilages and purified by DEAE-650M column and identified the sugar unit constituents by acid hydrolysis, followed by TLC and HPAEC analyses. The short-term moisturizing effect of the mucilages was determined on pig skin using Corneometer®. 

Objective: The present study was aimed to investigate the physicochemical properties, chemical characterization and skin moisturizing effect of the mucilages extracted from Hibiscus rosa-sinensis (HR), and H. mutabilis (HM). 

Results: The yield of HR and HM mucilages was 21% and 15% w/w. Each of mucilage showed the specific physicochemical properties. The main component of HR and HM mucilages was acidic polysaccharides named as AHR and AHM. The major components with the Mol% of AHR were 27% galactose, 24% rhamnose, 19% galacturonic acid, and 18% arabinose, while AHM were rich in 27% rhamnose, 25% galactose, 18% xylose, 16% arabinose and 9% galacturonic acid. The skin moisturizing effect of 0.2% HR mucilage was significantly more effective than 0.2% HM mucilage, 0.2% hyaluronic acid, 5% propylene glycol and 5% butylene glycol at 30 min after application.

Conclusion: The results suggest that mucilage extracted from Hibiscus rosa-sinensis was more superior in quality than Hibiscus mutabilis mucilage for using as a good moisturizer in the skin care product. ©.2014, International Journal of Pharmacy and Pharmaceutical Science. All Right Reserved.
Selection and characterization of probiotic lactic acid bacteria with heterocyclic amine binding and nitrosamine degradation properties

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ABSTRACT

Potential probiotic strain for being health protectant especially intestinal illness is strain specific. This study investigated the selection of a new strain of probiotic of non-human origin and of human origin with the properties of intestinal protection against cancer. From the primary screening results, the human feces origin strains showed more bile salt tolerance than the fermented food origin strains. Whereas none of the human feces origin isolates could grow well in the acid condition. Lactobacillus plantarum CM4 was the new probiotic of non-human origin strain for this study. CM4 cells is said to tolerate and grow in 0.3% bile salt after 5 hours of incubation, at pH3 after 6 hours of incubation. This is in agreement with in vivo study for intestinal adherence ability of probiotic, a live CM4 cells was able to persist in mice small intestine and colon for 5 days. Live CM4 cells showed most effectiveness to bind 2-amino-1-methyl-6-phenylimidazo[4,5-b]pyridine (PhIP) mutagen after 24 hours of incubation with 46.32% of binding ability while 144 hours of incubation with 85.34% of binding ability was the most effective for 2-amino-3-methylimidazo[4,5-f]quinoline (IQ) mutagen. The significant difference (p
A novel moisturizer extracted from freshwater macroalga [rhizoclonium hieroglypticum (C.agardh) k tzing] for skin care cosmetic

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ABSTRACT

Our previous study demonstrated that the aqueous extract from freshwater macroalga Rhizoclonium hieroglypticum (C.Agardh) K tzing (RW) contained mostly polysaccharides and amino acids which might play an important role as a skin moisturizer. Therefore, its moisturizing effect in pig skin model and human skin was compared with some well-known commercial moisturizers such as glycerin (G), propylene glycol (PG) and hyaluronic acid (HA). The RW cream was then formulated and investigated its physical properties, pH and viscosity as well as stability under various storage conditions. The skin irritation and clinical evaluation for skin moisturizing effect in healthy volunteers were also evaluated. Skin patch test using Finn chamber® and skin moisturizing measurement using Corneometer® were conducted in 30 healthy volunteers. The skin hydration was measured at before and after applying the RW cream and control creams (cream base, G, PG and HA creams) for 15, 30 min, 1 hour for a short-term effect and 1 week (twice daily) for long-term usage. Satisfaction test using questionnaire was also performed. The results revealed that the moisturizing effect on human skin of RW is very similar to hyaluronic acid and glycerin. From clinical evaluation, the skin hydration increased after using RW cream in both short-term and long-term usage and no skin irritation occurred. Interestingly, the moisturizing effect of RW cream was comparable to HA cream (p
A potential synbiotic beverage from fermented red seaweed (Gracilaria fisheri) using Lactobacillus plantarum DW12

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ABSTRACT

A novel functional beverage was produced from red seaweed (Pom-nang seaweed), by fermentation using a probiotic bacterium Lactobacillus plantarum DW12 as a starter culture. In addition to the normal fermentation products the bacterium produced γ-aminobutyric acid (GABA) and prebiotic compounds. A cell free culture supernatant also inhibited the growth of potential foodborne pathogens and spoilage bacteria (Bacillus cereus TISTR2687, Staphylococcus aureus PSSCM10004, Escherichia coli PSSCM10001, Salmonella Typhi ATCC19430 and Vibrio parahaemolyticus PSSCM10004). In addition, the cell free culture supernatant had antioxidant activity as shown by its ability to scavenge 2, 2'-azino-bis (3-ethylbenzthiazoline-6-sulphonic acid (ABTS) and 2, 2-diphenyl-1-picrylhydrazyl (DPPH) at a level of 60 and 68%, respectively. Using in vitro tests this bacterium was resistant to 1 mM H2O2 for 8 h and grew at various pH values from 2 to 9 and survived for 12 h in the presence of bile salts (0.15-0.30%). Results of antibiotic susceptibility tests showed that 8 of 15 antibiotics were inhibitory to strain DW12 at susceptible and intermediate levels. The fermented red seaweed beverage (FSB) contained 5.41 log CFU/ml lactic acid bacteria, 1284 mg/L GABA, 11.79 mg/ml sugars (fructose, glucose and sucrose) and 0.31 mg/ml of fructooligosaccharides (FOS, kestose and fructosylnystose). Freeze dried FSB at the concentrations tested (0.5-2.0%), that contained 78.61-314.42 mg/100 ml of sugars and 2.10-8.20 mg FOS/100 ml acted as a prebiotic by promoting the growth of strain DW12. © 2008 IFRJ, Faculty of Food Science & Technology, UPM.
Nanoemulsion loaded with marigold flower extract (Tagetes Erecta linn) in gel preparation as anti-wrinkles cosmeceutical

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ABSTRACT

Objective: Aging process causes the skin problems that can be prevented by using effective cosmeceuticals with antioxidant activity. Our previous study demonstrated that ethyl acetate marigold flower extract (EA) consisting the flavonoids that exhibited potent antioxidant activity with safe. Therefore, the EA loaded nanoemulsion was prepared and incorporated into a gel base for anti-wrinkles purpose. Methods: The gel containing nanoemulsion loaded with EA (EANG) was investigated physical properties and antioxidant activity (DPPH assay) at before and after various storage conditions for 3 months. The in vitro skin permeation study was also carried out. Skin irritation test, clinical evaluation for skin moisturizing effect and skin wrinkles-reducing capability were finally performed in thirty healthy human volunteers for 8 weeks. Results: The results showed that the EANG was physically stable and exhibited good stability in antioxidant activity after various storage conditions. From the in vitro permeation test, a major compound: quercetagetin in the EANG was mostly remained in stratum corneum, viable epidermis and dermis rather than in blood circulation which was related to cosmetic purpose. The results from clinical evaluation revealed that the skin hydration was significantly increased after using the EANG. In addition, it showed significant reduction in all wrinkle parameters (surface, volume, Ra and Rz). The percentages of efficiency between EANG area and placebo area were also significantly different in terms of volume, Ra and Rz. Conclusion: Our results strongly indicated that the gel containing nanoemulsion loaded with marigold flower extract was a promising anti-wrinkles cosmeceutical.
Potential technique for tiny crystalline detection in lycopene-loaded SLN and NLC development

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ABSTRACT

Context: The advantage of solid nanocarriers like solid lipid nanoparticles (SLN) or nanostructured lipid carriers (NLC) is related to some degree of crystalline characteristics of the lipid. However, the detection of tiny content of crystalline structure in such nanoparticles is difficult. Objective: The aim of this study was to explore a potential method for detection of low degree of crystalline characteristics of lycopene-loaded SLN and NLC. Methods: Crystalline characteristics investigation was done by polarized light microscope (PLM), differential scanning calorimeter (DSC), X-ray diffractometer (XRD) and transmission electron microscope (TEM). Results and discussion: It was found that high crystalline characteristics as anisotropic molecular organization crystal of pure orange wax and lycopene could be investigated by PLM, DSC and WAXS. Low crystallinity of lycopene-loaded SLN and NLC could not be detected by those techniques. Electron diffraction mode of TEM showed potential detection of tiny crystalline characteristics of such systems. The diffraction pattern of lycopene-loaded SLN and NLC exhibited obvious zero order laue zone indicating an isotropic fine grained polycrystalline of the nanoparticles. Conclusion: It could be concluded that TEM is a promising method for detection of low-level crystallinity of solid nanocarriers. © 2014 Informa Healthcare USA, Inc.
Inhibitory effect of turmeric curcuminoids on FLT3 expression and cell cycle arrest in the FLT3-overexpressing EoL-1 leukemic cell line

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ABSTRACT

Leukemia is a hematologic malignancy with a frequent incidence and high mortality rate. Previous studies have shown that the FLT3 gene is overexpressed in leukemic blast cells, especially in acute myeloid leukemia. In this study, a commercially available curcuminoid mixture (1), pure curcumin (2), pure demethoxycurcumin (3), and pure bisdemethoxycurcumin (4) were investigated for their inhibitory effects on cell growth, FLT3 expression, and cell cycle progression in an FLT3-overexpressing EoL-1 leukemic cell line using an MTT assay, Western blotting, and flow cytometry, respectively. The mixture (1) and compounds 2-4 demonstrated cytotoxic effects with IC50 values ranging from 6.5 to 22.5 ?M. A significant decrease in FLT3 protein levels was found after curcuminoid treatment with IC20 doses, especially with mixture 1 and compound 2. In addition, mixture 1 and curcumin (2) showed activity on cell cycle arrest at the G0/G1 phase and decreased the FLT3 and STAT5A protein levels in a dose-dependent manner. Compound 2 demonstrated the greatest potential for inhibiting cell growth, cell cycle progression, and FLT3 expression in EoL-1 cells. This investigation has provided new findings regarding the effect of turmeric curcuminoids on FLT3 expression in leukemic cells. © 2014 The American Chemical Society and American Society of Pharmacognosy.

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Suicide risk among Thai illicit drug users with and without mental/alcohol use disorders

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ABSTRACT

Background: It is not yet known if the increased risk of suicide in substance abusers is caused by the causal and/or coexisting relationship between substance use and psychiatric disorders. This study was designed to estimate the suicide risk among individuals with illicit drug use alone, illicit drug users with mental disorders, and illicit drug users with alcohol use disorders. Methods: Subjects were participants of the 2008 Thai National Mental Health Survey. They were asked for their illicit drug use in the past year. The Mini International Neuropsychiatric Interview (MINI), current suicidality (1 month prior to assessment), mood episodes, anxiety disorders, psychotic disorders, and alcohol use disorders were used for assessing mental/alcohol use disorders. A score of 1 or more for the MINI-Suicidality module was defined as the presence of suicide risk. Results: Of the total 17,140 respondents, 537 currently used illicit drugs, while 1,194 respondents had a suicide risk. Common illicit drugs were kratom (59%) and (meth)amphetamine (24%). Compared with 16,603 Thais without illicit drug use, the illicit drug users with or without mental/alcohol use disorders (n=537) had an increased risk of suicide (adjusted odds ratio [OR], 95% confidence interval [CI] =2.09, 1.55-2.81). While those who used illicit drugs alone (no mental/alcohol use disorder) (n=348) had no increased risk of suicide (adjusted OR, 95% CI =1.04, 0.66-1.65), the illicit drug users with mental or alcohol use disorders (n=27 and n=162, respectively) had significantly increased risk of suicide (adjusted ORs, 95% CIs =14.06, 6.50-30.3 and 3.14, 1.98-4.99, respectively). Conclusion: A key limitation of this study was the combined suicidal behaviors as a suicidality risk. Mental or alcohol use disorders found in this population actually increased the suicide risk. These findings support the coexisting relationship that mental and alcohol use disorders play a vital role in increasing the suicide risk in illicit drug users. © 2014 Kittirattanapaiboon et al.
Proximate analysis and oxidative stability of wax from the nuts of Krabok (Irvingia malayana)

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ABSTRACT

Proximate analysis and oxidative stability of Krabok nuts were carried out in order to obtain more extensive information pertaining to their suitability as the raw material for a food supplement. It was found that 100 g of the nuts consist of 1.79 g of ash, 2.08 g of moisture content, 66.78 g of crude fat, 9.07 g of total carbohydrate, 3.40 g of crude protein, 61.43 mg of iron and 103.30 mg of calcium. The oxidative stability of the nuts was studied during storage at four different conditions including 4°C, 45°C, room temperature (23-25°C) and sun light exposure. Peroxide values were measured every 30 days for 4 months. At 45°C, the peroxide values were found in the range 2.31-3.94 meq ROOH/kg of fat, which is higher than at other conditions. The nuts stored at 4°C showed the lowest peroxide value, ranging from 1.37 to 2.70 meq ROOH/kg of wax. Where as, they were 1.1446-1.1877 meq ROOH/kg of fat at room temperature. It was concluded that the preferred temperature for keeping the nuts is at 4°C. © ISHS.

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Development of transdermal patch containing Longan seed extract

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ABSTRACT

The purpose of this study was to develop transdermal patch containing longan seed extract for the treatment of joint inflammation. Transdermal delivery systems (TDSs) also known as transdermal patch was developed in order to increase the efficacy of drugs or active substances via skin. TDSs are dosage forms involving the control of active compounds through the skin for local or systemic therapeutic effect and suited for the treatment of chronic disorder. Longan seed extract contains many flavonoid and phenolic compounds that possess anti-inflammatory activity by inhibiting the matrix metalloproteinase enzymes (pro-MMP-2 and pro-MMP-9 induced MMP-2 and MMP-9) in human synovial cells that relate to the cause of rheumatoid arthritis with the joint inflammation. Firstly, the hydrogel matrix system was developed by the casting method, using various types and concentrations of bioadhesive polymers and plasticizers. Hydroxyl propyl methyl cellulose (HPMC), combined with chitosan and PVP K-90 in various ratios, was used as polymer system. Propylene glycol, polyethylene glycol-400 (PEG 400) or glycerine was used as plasticizer and DMSO, oleic acid or lemon oil as penetration enhancer. These were then evaluated for their physical properties such as appearance, pH and thickness. The mechanical properties such as tensile strength and percentage elongation at break were also determined. The results revealed that the formulation containing squid HPMC, chitosan and PVP K-90 (12:3:1) with PEG 400 showed the most optimal physical characteristics with the highest tensile strength and percentage elongation at break. Therefore, this was then selected for longan seed extract inclusion. The release profile as well as clinical evaluation will be further investigated. © ISHS.
Development of Krabok (Irvingia malayana) wax as a suppository base

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ABSTRACT

Krabok (Irvingia malayana) wax was modified to obtain elasticity and good releasing medicament suppository bases by mixing with compounds such as vegetable oils, mineral oil, fatty acids and semi-synthetic waxes in various proportions to produce bases with melting range of 33-37°C. Compounds which passed the screening tests including rice bran oil, mineral oil (heavy), Span 20, cotton seed oil and polyethylene glycol (PEG) 40 stearate were combined with wax and prepared as suppositories. Drug released study demonstrated that wax with 15% cotton seed oil and 15% PEG 40 stearate was the best in releasing diclofenac into the medium. All wax mixtures become harder after three months storage together with darker color and white surface coating. Moreover, wax mixed with oleic acid gave the lowest onset temperature of melting point. From all information obtained, 11 formulae were prepared and tested for their suitability as systemic suppository bases. Only 3 formulae were chosen and re-prepared with the addition of 5% diclofenac sodium. All formulae were too soft (
Curcumin nanoformulations: A review of pharmaceutical properties and preclinical studies and clinical data related to cancer treatment

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ABSTRACT

Curcumin, a natural yellow phenolic compound, is present in many kinds of herbs, particularly in Curcuma longa Linn. (turmeric). It is a natural antioxidant and has shown many pharmacological activities such as anti-inflammatory, anti-microbial, anti-cancer, and anti-Alzheimer in both preclinical and clinical studies. Moreover, curcumin has hepatoprotective, nephroprotective, cardioprotective, neuroprotective, hypoglycemic, antirheumatic, and antidiabetic activities and it also suppresses thrombosis and protects against myocardial infarction. Particularly, curcumin has demonstrated efficacy as an anticancer agent, but a limiting factor is its extremely low aqueous solubility which hampers its use as therapeutic agent. Therefore, many technologies have been developed and applied to overcome this limitation. In this review, we summarize the recent works on the design and development of nano-sized delivery systems for curcumin, including liposomes, polymeric nanoparticles and micelles, conjugates, peptide carriers, cyclodextrins, solid dispersions, lipid nanoparticles and emulsions. Efficacy studies of curcumin nanoformulations using cancer cell lines and in vivo models as well as up-to-date human clinical trials are also discussed. © 2014 Elsevier Ltd.
A new concept for the treatment of atopic dermatitis: Silver-nanolipid complex (sNLC)

ABSTRACT

In the treatment of mild to medium severe atopic dermatitis a new formulation proved to be highly efficient. The formulation is based on a combination of microsilver and nanolipid carriers (NLC) incorporated into an o/w cream and a lotion. A theory of action was proposed, the formation of silver-NLC complex (sNLC). In this study this theory was proven, and based on this new mechanism two new approaches for dealing with AD are suggested to distinctly improve AD treatment, i.e. increasing efficiency, reducing drug exposure and reducing side effects. The antimicrobial silver ions adsorb onto the surface of the negatively charged NLC (=sNLC complex). The sNLC as nanoparticles are highly adhesive to skin and bacterial surfaces, leading to a locally high concentration of silver ions killing the bacteria, much more effective than silver alone. The NLC restore the distorted skin barrier. Based on this a new two-step approach is suggested: (1) "treatment-supportive consumer care" by restoring the normal skin condition (NLC for barrier restoration plus synergistic antibacterial silver-NLC complex) and (2) "drug-loaded consumer care AD formulations". i.e. incorporating drugs into the NLC of this consumer care formulation. NLC incorporation makes the drugs more effective (penetration enhancement) and simultaneously exploits the skin normalization ability of the skin care sNLC formulation, future drug candidates being prednicarbate and tacrolimus. © 2013 Elsevier B.V.
Quetiapine for acute bipolar depression: A systematic review and meta-analysis

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ABSTRACT

Background: Precise estimated risks and benefits of quetiapine for acute bipolar depression are needed for clinical practice. Objective: To systematically review the efficacy and the tolerability of quetiapine, either as monotherapy or combination therapy, for acute bipolar depression. Methods: We included all randomized, controlled trials (RCTs) comparing quetiapine with other treatments, including placebo, in patients with acute bipolar depression (bipolar I or II disorder, major depressive episode). Published and unpublished RCTs were identified using the Cochrane Central Register of Controlled Trials, MEDLINE®, Web of Knowledge™, CINAHL®, PsycINFO®, the EU Clinical Trials Register database, and ClinicalTrials.gov. The primary outcome was the change scores of depression rating scales. Results: Eleven RCTs (n=3,488) were included. Two of them were conducted in children and adolescents. The change in depression scores was significantly greater in the quetiapine group compared with the placebo group (mean difference, [MD] =-4.66, 95% confidence interval [CI] -5.59 to -3.73). The significant difference was observed from week 1. Compared with placebo, quetiapine had higher incidence rates of extrapyramidal side effects, sedation, somnolence, dizziness, fatigue, constipation, dry mouth, increased appetite, and weight gain but lower risks of treatment-emergent mania and headache. Quetiapine treatment was associated with significant improvement of clinical global impression, quality of life, sleep quality, anxiety, and functioning. Conclusion: Quetiapine monotherapy is effective for acute bipolar depression and the prevention of mania/hypomania switching. Its common adverse effects are extrapyramidal side effects, sedation, somnolence, dizziness, fatigue, constipation, dry mouth, increased appetite, and weight gain. The lower risk of headache in quetiapine-treated patients with acute bipolar depression should be further investigated. The evidence for the use of quetiapine combined with mood stabilizers in children and adolescents with acute bipolar depression is too small to support the clinical practice. © 2014 Suttajit et al.
Characterization of hypersensitivity reactions reported among Andrographis paniculata users in Thailand using Health Product Vigilance Center (HPVC) database

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ABSTRACT

Background: Andrographis paniculata (andrographis) is one of the herbal products that are widely used for various indications. Hypersensitivity reactions have been reported among subjects receiving Andrographis paniculata in Thailand. Understanding of characteristics of patients, adverse events, and clinical outcomes is essential for ensuring population safety. Methods: Thai Vigibase data from February 2001 to December 2012 involving andrographis products were used. This database includes the reports submitted through the spontaneous reporting system and intensive monitoring programmes. The database contained patient characteristic, adverse events associated with andrographis products, and details on seriousness, causality, and clinical outcomes. Case reports were included for final analysis if they met the inclusion criteria; 1) reports with andrographis being the only suspected cause, 2) reports with terms consistent with the constellation of hypersensitivity reactions, and 3) reports with terms considered critical terms according to WHO criteria. Descriptive statistics were used. Results: A total of 248 case reports of andrographis-associated adverse events were identified. Only 106 case reports specified andrographis herbal product as the only suspected drug and reported at least one term consistent with constellation of hypersensitivity reactions. Conclusions: Our findings suggested that hypersensitivity reactions have been reported among patients receiving Andrographis paniculata. Healthcare professionals should be aware of this potential risk. Further investigation of the causal relationship is needed; meanwhile including hypersensitivity reactions for andrographis product labeling should be considered. © 2014 Suwankesawong et al.; licensee BioMed Central.

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Development of mucoadhesive buccal films from rice for pharmaceutical delivery systems

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ABSTRACT

The aim of this work was to investigate the suitable rice varieties for developing pharmaceutical buccal films. Two rice varieties with extreme difference in amylose content were used. Rice powders were chemically modified to yield the carboxymethyl rice prior to film preparation. Scanning electron microscope (SEM) and X-ray diffractometer (XRD) were used to investigate the solid structure of rice powders. The results indicated that amylose content in the rice grains played the effects on the morphology and crystalline structure of the modified rice powders as well as the film properties. The modified rice powders of low amylose content showed halo pattern XRD whereas some crystalline peaks could be observed from the high amylose content modified rice powders. Adding of glycerin caused the films better properties of more transparency and getting rid of air bubbles. High amylose rice films showed more transparency and higher mucoadhesive property and was considered to be suitable for incorporating the drug. Adding of surfactant caused the increase in tensile strength and decrease in elongation of the rice films. The most suitable surfactant for diclofenac buccal rice film is Tween 20. This study demonstrates that rice grains are the promising natural source for pharmaceutical film forming agent. Suitable pharmaceutical buccal films could be developed from the rice with high amylose content.

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