COSMETICS/COSMECEUTICALS

NPARR 5(3), 2014-0218 Formulation and evaluation of herbal antioxidant face cream of *Nardostachys jatamansi* collected from Indian Himalayan region

To prepare and evaluate a herbal antioxidant face cream which is made by the ethanol extract of *Nardostachys jatamansi* (Valerianaceae). Antioxidant activity of ethanol extract was assessed by previously reported 2, 2-Diphenyl-1-picrylhydrazyl method. By discovering different types of formulations, such as oil in water, we were able to create several face creams respectively classified from F1 to F6, by incorporating different concentrations of stearic acid and acetyl alcohol. The evaluation of all formulations (F1 to F6) has been done by the analysis of different parameters like pH, viscosity, spread ability and stability.

An ethanol fraction analyzed from a sample of *Nardostachys jatamansi* showed a significant antioxidant activity with an IC$_{50}$ value of 58.39 µg/mL while for ascorbic acid the IC$_{50}$ value was 46.68 µg/mL. Among the six formulations (F1-F6) F5 and F6 showed good spread ability, good consistency, homogeneity, appearance, pH; there is no proof of a separation phase and ease of removal. Also the formulations F5 and F6 showed no redness or edema or erythema and irritation during irritancy studies.

These formulations can be safely used on the skin. Hence, the study suggests that the composition of extract and the base of the cream F5 and F6 are more stable and safe, but it may produce synergistic action [Abhay Prakash Mishra*, Sarla Saklani, Luigi Milella and Priyanka Tiwari (Department of Pharmaceutical Chemistry, H.N.B. Garhwal (A Central) University, Srinagar Garhwal, Uttarakhand, India), *Asian Pacific Journal of Tropical Biomedicine*, 2014, 4 (Suppl. 2), S679–S682].

NPARR 5(3), 2014-0219 Water-soluble chitosan and herbal honey compound alleviates atopic dermatitis-like lesions in NC/Nga mice

Atopic dermatitis (AD) is a chronic inflammatory skin disease that was influenced by complex interactions via genetic, environmental, immunologic, and biochemical factors, though the cause of AD is still unknown. It characterized by elevated serum immunoglobulin E (IgE) levels, immunological abnormalities, and eosinophilia in the tissues and peripheral blood. In the present study, we applied an antimicrobial moisturizing cream containing low-molecular weight water-soluble chitosan and herbal honey (AMCH) to remedy AD-like lesions. The inhibiting effect of AMCH on NC/Nga mice, that AD-like lesion was induced by 1-chloro-2, 4-dinitrobenzene (DCNB), was evaluated by examining sensory evaluation scores, scratching behavior, immune cells in blood, serum IgE level, infiltration of mast cells, and skin histology. The total sensory evaluation scores, scratching behavior, the level of serum IgE, interleukin-4 (IL-4), and IL-12 in AD mouse model were significantly reduced by AMCH. Moreover, its suppressing effect resulted in decreased mast cell infiltration. Our results suggest that AMCH might be beneficial as a potent agent for treatment of AD-like lesion [Changyong Choi, Won-Seok Kim, Yung Hoon Park, Seong-Cheol Park, Mi-Kyeong Jang and Jae-Woon Nah* (Department of Polymer Science & Engineering, Sunchon National University, Sunchon, Jeonnam 540-742, Republic of Korea), *Journal of Industrial and Engineering Chemistry*, 2014, 20(2), 499-504].

NPARR 5(3), 2014-0220 Exploring the antioxidant potential of *Helichrysum stoechas* (L.) Moench phenolic compounds for cosmetic applications: Chemical characterization, microencapsulation and incorporation into a moisturizer

The present work explores the antioxidant potential of *Helichrysum stoechas* (L.) Moench...
phenolic compounds for cosmetic applications involving the following steps: chemical characterization, microencapsulation and incorporation into a moisturizer. Eighteen different phenolic compounds were identified in flowering aerial parts (decoction and hydroalcoholic extract), being 3,5-\textit{O}-dicaffeoylquinic acid and myricetin \textit{O}-acetylhexoside the most abundant phenolic acid and flavonoid, respectively. Comparatively to the decoction form, the hydroalcoholic extract presented both higher antioxidant activity and higher phenolic content, being its lyophilized form chosen to proceed with microencapsulation studies. Double emulsion/evaporation microencapsulation technique was applied to produce polycaprolactone based microspheres containing \textit{H. stoechas} hydroalcoholic extract, which were then successfully incorporated into a moisturizer. The results obtained demonstrated the antioxidant potential of \textit{H. stoechas} hydroalcoholic extract and the viability of its microencapsulation, thus opening new perspectives for the exploitation of these natural phenolic extracts in applications such as the cosmetic industry [Marisa R. Barroso, Lillian Barros, Montserrat Dueñas, Ana Maria Carvalho, Celestino Santos-Buelga, Isabel P. Fernandes, Maria F. Barreiro and Isabel C.F.R. Ferreira* (Mountain Research Center (CIMO), ESA, Polytechnic Institute of Bragança, Campus de Santa Apolónia, 1172, 5301-855 Bragança, Portugal), \textit{Industrial Crops and Products}, 2014, \textbf{53}, 330-336].

\textbf{NPARR 5(3), 2014-0221 Microencapsulation of essential oils with biodegradable polymeric carriers for cosmetic applications}

Microencapsulation provides an important tool for cosmetic and/or pharmaceutical industry, enabling protection and controlled release of several active agents. The encapsulation of essential oils in core–shell or matrix particles has been investigated for various reasons, e.g., protection from oxidative decomposition and evaporation, odor masking or merely to act as support to ensure controlled release. A large number of microencapsulation methods have been developed in order to be adapted to different types of active agents and shell materials, generating particles with a variable range of sizes, shell thicknesses and permeability, providing a tool to modulate the release rate of the active principle.

With this work, an overview regarding properties and applications of essential oils and biodegradable polymers in the cosmetic field, focusing the use of polylactide as the base material to encapsulate thyme oil, as well as of microencapsulation processes with a particular emphasis on the coacervation, will be presented [Isabel M. Martins*, Maria F. Barreiro, Manuel Coelho and Alírio E. Rodrigues (LSRE–Laboratory of Separation and Reaction Engineering, Associate Laboratory LSRE/LCM, Department of Chemical Engineering, Faculty of Engineering of University of Porto, Rua Dr Roberto Frias, 4200-465 Porto, Portugal), \textit{Chemical Engineering Journal}, 2014, \textbf{245}, 191-200].

\textbf{NPARR 5(3), 2014-0222 Are plants used for skin care in South Africa fully explored?}

South Africa is an important focal point of botanical diversity, and although many plant species have been used since ancient times in ethnomedicine, only a few species have hitherto been fully investigated scientifically. A large proportion of the South African population use traditional medicines for their physical and psychological health needs. Many medicinal plants have recently gained popularity as ingredient in cosmetic formulations based on their ethnomedicinal values and many cosmetic products sold in stores are of natural origin. The present review discusses the ethnopharmacological values, pharmacological and toxicological evidence of 117 plant species grown in South Africa, which are used traditionally for skin care purposes. Special focus was on their traditional use for many skin disorders in order to identify their therapeutic potential, the state of ethnopharmacological knowledge and special emphasis has been on areas which require further research.
The information regarding all 117 plant species mentioned was extracted from Sci-Finder, Science direct, Medline and Google Scholar. All the available relevant data for medicinal plants was collated from literature review articles from the 19th century to early 2013. The extracts from different parts of plants exhibited significant pharmacological properties, proving significant skin care potentials. Special emphasis was on those plant species which still need further exploration and these have been documented separately. Despite the immense use of plants in ethnomedicine for skin care, limited research has been done on the activity of the crude extracts and very little on the active constituents. Consequently, almost 35 out of the 117 species are totally unexplored in the area of skin care. This investigation would be of interest to a broad readership including those researchers working in this field. The plant species namely: Greyia flanaganii, Sideroxylon inerme, Sclerocarya birrea, Calodendrum capense, Hyaenanche globosa, Harpephyllum caffrum, Ximenia americana, Leucosidea sericea Artemisia afra, and six Aloe species have been scientifically validated by our research group for skin hyperpigmentation problems [Namrita Lall*, Navneet Kishore (Department of Plant Science, Plant Science Complex, University of Pretoria, Pretoria 0002, South Africa), Journal of Ethnopharmacology, 2014, 153(1), 61–84].

NPARR 5(3), 2014-0223 The effect of olive oil and the Saj® cream in prevention of striae gravidarum: A randomized controlled clinical trial

To compare the clinical efficacy of olive oil and the Saj® cream on the occurrence and severity of striae gravidarum. Parallel randomized controlled clinical trial. Setting West Health Centre, Lolagar and Akbarabadi Hospitals, Tehran, Iran. 360 Nulliparous women at their second trimester of pregnancy randomly (simple randomization) allocated into three groups of olive oil, the Saj® cream, and control that finally 150 of them (50 subjects in each group) completed the study. Control group did not receive any medication/intervention. At gestational age of 38–40 weeks the participants were evaluated regarding the occurrence of striae on abdominal skin and its severity that were primary outcome of the study.

In the olive oil group, striae occurred in 72% of the participants, which were mild, moderate, and severe in 32%, 26%, and 6% of the cases, respectively. In those who received Saj® cream, striae occurred in 64% of the cases, which were mild, moderate and severe in 16%, 34%, and 14% of the cases, respectively. With regard to the control group, striae occurred in 60% of the participants, among which striae were mild, moderate, and severe in 22%, 24%, and 14% of the cases, respectively. There were no statistically significant differences among the three studied groups regarding the incidence or severity of striae. Neither olive oil nor the Saj® cream was effective in preventing the occurrence of striae gravidarum or affecting its severity. Further studies to examine the effect of other herbal/chemical preparations on occurrence of striae gravidarum are recommended [Farzaneh Soltanipour, Masoumeh Delaram*, Simin Taavoni, Hamid Haghani (Shahrekord University of Medical Sciences, Shahrekord, Iran), Complementary Therapies in Medicine, 2014, 22(2), 220–225].