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"PANASORB+GE" - NEW ADSORBENT FROM PLANT CELL TISSUE CULTURE

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In manufacture of galenic preparations a lot of waste will be formed. The complex, rational and effective utilisation of medicinal plant resources is very important for galenic manufacture. The aim of this work was the design of a new pharmaceutical preparation from waste of plant cell tissue culture of *Panax ginseng* C.A. Mey. strain LX-13. The waste was obtained in the processing of tincture "Panaxel". Phytochemical investigations of waste showed, that the waste contains mainly cellulose, significant amount of pectin (10%), protopectins (10%), germanium (0.11 mg/g) and trace of ginsenosides. It is known, that cellulose and pectin have an high adsorbent activity. Therefore it was interesting to develop a new adsorbent from waste. The new plant adsorbents "Panasorb+Ge" was obtained in the form of tablets. The waste was dried and processed by original technology [1]. It was established, that tablets "Panasorb+Ge" have high adsorption activity and adsorb Hg (66 mg/g), Pb (21 mg/g), Cd (19 mg/g), Sr (11 mg/g) from standard solutions. The effective adsorption of salts of heavy metals can be explain by the contents of nonesterified carboxyl and hydroxyl groups in galacturonic acids and their derivatives, contained in pectines. Germaniumorganic compounds stimulate the induction of endogenous gamma-interferon in human organism. High adsorption effect and immunomodulating activity of Ge was combined in the new adsorbent. Thus, the new unique adsorbent "Panasorb+Ge" was obtained as a result of waste processing.

[1] Slepian L., Shikov A., Vasil'eva A. and Minina S. Adsorbent remedy.

Patent of Russian Federation 2058784, 27 Apr., 1996.

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Comparison of the Secondary Metabolite Content of Three Distinct Samples of the Sea Hare *Aplysia dactylomela* from Tenerife

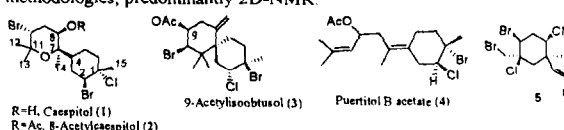
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Three samples of the sea hare *Aplysia dactylomela* were collected from two different locations on Tenerife, Spain in August 1995. After freeze-drying the samples were exhaustively extracted with CH_2Cl_2 and methanol. More than ten compounds were isolated by column chromatography, some of them previously known from red algae of the genera *Laurencia* and *Placodium*. Two of the compounds (2 and 4) are new natural products. Comparison of the major compounds isolated from the different samples indicated a good agreement between the samples collected at the same site (A1 and A2), and a marked difference in the sample collected at a remote location (A3). In the first two samples bicyclic sesquiterpenoids, e.g., 1 and 2, were the major components, monoterpenes, e.g., 5, were minor metabolites. In the third sample chamigrene-like metabolites predominated, e.g., 3. These results indicate that this specimen has probably been grazing on different algal species to that of the other two specimens.

All isolates were tested for antimicrobial activity, and inhibition of the enzymes reverse transcriptase of HIV-1 and tyrosine kinase.

The structure elucidation was performed using extensive spectroscopic methodologies, predominantly 2D-NMR.



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Fungi from Marine Algae as a Source of new Natural Products with Therapeutic Potential

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Fungi have for many decades been a favoured source of interesting new natural products, mainly due to their highly developed and diverse secondary metabolism. Thus, terrestrial fungi have been extensively studied. In direct contrast, however, fungi from the marine environment have hardly been investigated. In order to try to prove the contention that marine derived fungi are as equally interesting, and perhaps a unique source of new secondary metabolites, as their terrestrial counterparts, associated fungi from marine algae were investigated.

Fungi were isolated from marine algae after surface sterilization in order to obtain mainly endophytic strains. 71 brown, red and green algae from 13 different locations (e.g. Bretagne, Azores, Antarctic, Mediterranean Sea) were examined for the presence of fungi. A total of 441 fungal strains were isolated. The isolated fungi were identified as belonging to four genera of Ascomycetes, two genera of Zygomycetes and 21 genera of Fungi imperfecti; 71 strains remained sterile and therefore could not get identified. The only obligate marine fungi isolated were *Ascochyta salicorniae*, *Dendriphiella salina*, and *Corollospora maritima*.

114 strains were cultivated on a small scale (40 ml culture) and their ethyl acetate extracts tested in agar diffusion assays for their antibacterial, antifungal and antialgal activity. Cytotoxicity and nematocidal activities were also assessed. More than 80% of the ethyl acetate extracts demonstrated activity in at least one test system.

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NATURAL PRODUCTS CONTAINING β -CAROTENE IN DRUG DEVELOPMENT

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Natural products from medicinal plants are commonly used as biologically active components in formulated preparations in pharmaceutical practice. Constantly have been improved methods of isolation, purification and standardization of phytochemical preparations. The aim of our research was to obtain lipophilic fractions containing β -carotene from marigold (*Calendula officinalis*) and snowball-tree (*Viburnum opulus*). Deficiency of β -carotene leads to increasing of different skin and mucous membrane diseases, that's why semi-solid preparations for topical use can be applied in these cases. The lipophilic fractions of marigold flowers and snowball-tree containing carotene were obtained by method of circulating extraction. Purified, standardized and stable extracts were used in development of formulated preparations for topical use. The active concentration and subsidiary vehicles were established.

The results of the experiment determined that β -carotene fractions extracted from the snowball-tree fruits could be compatible with lipophilic (fatty) vehicles or with hydrophilic forming emulsions. Lipophilic extracts obtained from marigold flowers were compatible with all types of emulsified systems which differ by rheological properties. Results of the research were supported by investigation of physicochemical properties, structure and quantity of β -carotene in formulated preparations with the help of spectrometry and thin-layer chromatography.