

## 422. VEGETAL MEDICINAL PRODUCTS WITH RESINS

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**Introduction.** The resin-containing herbal medicinal products are very heterogeneous in origin and chemical composition. Therefore, these products have a wide therapeutic application in natural medicine. But, for efficient application of these vegetal medicinal products the complex modern researches are needed.

**Aim of the study.** To elucidate the vegetal medicinal products containing resins.

**Materials and methods.** The profile literature and databases on plants and vegetal products containing resins were analyzed and evaluated.

**Results.** A resin is a solid or highly viscous, sticky flammable organic substance which is insoluble in water. It represents a heterogeneous mixture of volatile oils terpene compounds (polymerized or oxidized) exuded by some plants as secondary metabolites. Plants secrete resins for their protective benefits in response to injury, insect or other pathogen attack. There are some groups of resins depending on the predominance of certain chemical constituents in different vegetal medicinal products: oleo-resins – *Terebentina communis*, *Colophonium*, *Terebentina Veneta*, *Balsamum Canadense*, *Balsamum Copaibae* and oleo-gum resins – *Gummi Myrrhae*, *Olibanum*, *Commiphora Mukul* (these 2 groups represent a mixture of resins, volatile oils with about 50-90% and gums as physiological or pathological exudations); proper resins as volatile oils distillation results from oleo-resins; balsams (the final products of destruction metabolism) – *Propolis*, *Balsamum Peruvianum*, *Benzoe Resina*, *Benzoe*; glycoresins (glycosidic esters of hydroxylated fatty acids with resin appearance), lactoresins (products with milky consistence, in contact with air – solid exudation), gumresins (hard resins mixed with gums, in contact with air – solidifies) – *Guaiaci Resina*, *Gutta-Percha*, *Jalapae Tubera et Resina*, *Scammoniae Resina*; and tars (the result of dry distillation of wood) – *Pix Liquida*, *Pix Pinaceae*, *Pix Abietinarum*, *Pix Cadi*, *Pix Juniperi oxycedri*, *Oleum cadini*, *Pix Betulina*, *Pix Betulae*.

**Conclusions.** The chemical natural group of resins is very complex according to the structure complexity, physical and chemical properties, also methods of extractions and therapeutic application. The vegetal medicinal products with resins are very diverse in chemical structure and composition, thus, they are very complicated in rational and efficient medicinal applications.

**Key words:** resins, classification, vegetal medicinal products.

## 423. ALGAE BIOTECHNOLOGY PRODUCTS AND THEIR APPLICATION IN THE FOOD AND PHARMACEUTICAL INDUSTRIES

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**Introduction.** The scientific community is constantly looking for new sources of natural chemical compounds to satisfy humanity worldwide with the need for quality phyto-medicines

drugs and balanced foods. During the last time, the scientists have the main subject for scientific research algae as potential producers of different useful biochemicals.

**Aim of the study.** To evidenciate the algae species as producers in biotechnological medicine.

**Materials and methods.** The profile literature and databases on microalgae as biotechnological producers in alimentary and pharmaceutical industries were evaluated and analyzed.

**Results.** Microalgae are sunlight – driven cell factories that are able to efficiently utilize CO<sub>2</sub> for the production of biochemicals such as polysaccharides, proteins, oils, vitamins, carotenoids and others. We evidenciated some algal taxons and application of their biotechnological products in pharmaceutical, cosmetic and food industries: *Aphanizomenon flos-aquae* produces mycosporine-like amino acids used as UV-screening agent; *Amphidinium sp.* – macrolides amphidinolide as antitumoral remedy; *Ascophyllum nodosum* – proteins used in cosmetics as anti-aging agent; *Chlorella sp.* – proteins, carotenoids, triglycerides and hydrocarbons as immune stimulator and free radicals scavenger; *Ch. zofingiensis* – astaxanthin as antioxidant remedy; *Ch. vulgaris* – biochemicals stimulating collagen production in the skin; *Cryptocodinium cohnii* dinoflagellates are used to produce docosahexaenoic acid; *Dunaliella salina* – B-carotene used as colorant, antioxidant, and cancer-preventive properties; *Nostoc flagelliforme* – pigments echinenone and myxoxanthophyll, allophycocyanin, phycocyanin and chlorophyll, 19 amino acids, vitamin B<sub>12</sub>, cryptophycin used for the treatment of diarrhea, hepatitis, and hypertension; *Haematococcus pluvialis* – astaxanthin as antioxidant, used in nutraceutical, cosmetics, food and feed industries; *Spirulina platensis* – proteins, g-linolenic acid, vitamins, applicated as nutritional supplements, and infant formulas.

**Conclusions.** There is indeed a wide range of applications of microalgae in biotechnology and a great potential to further exploit the rich microalgal resources for various biotechnological applications in medicine. They are potential sources of high-value products, that may lead to the discovery of new generation of drugs.

**Key words:** microalgae, biochemicals, application.

#### 424. THE ANTIOXIDANT PROFILE OF *SOLIDAGO* SPECIES

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**Introduction.** Antioxidants from natural sources are valuable bioactive compounds with well-demonstrated health potential for use in several human disorders. Some species of genus *Solidago* represent a rich source of natural compounds with multi-pharmacological properties, including phenolic compounds which express antioxidant activity.

**Aim of the study.** This paper provides a review of current studies on antioxidant activity of *Solidago* species. The main purpose of the research represents the evaluation of the correlation between phytochemical characteristics and antioxidative properties of *Solidago* species, and methods used for determination of their antioxidant activity.

**Materials and methods.** The bibliographic complex study was performed using the databases of scientific references: *PubMed*, *ResearchGate*, *GoogleScholar* and *ScienceDirect*.

**Results.** In recent years, great interest has been focused on researching and using natural antioxidants in medicine and pharmacy applications, due to their considerable biological value.