The application of essential oils and terpenics/terpenoids compounds in the fields of pharmaceutic and cosmetic through the knowledge registered in patents

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Abstract

This work identified the current technological uses of essential oils and terpenic/terpenoids compounds in the fields of PHARMACEUTIC and COSMETIC industries through the research in granted patent database from United States Patent and Trademarks Office amongst 1980-2003. 2,288 documents were listed, where the Pharmaceutical Preparations answered by 56.73% (1,298 patents); and Cosmetics, Perfumes and similar preparations for personal care, 43.27% (990 patents). From the most important Pharmaceutical classes, five were rolled in this research: Heart diseases, Central Nervous System, Alimentary/ Metabolism, Anti-infectious and Breathing. In Cosmetic sector, the major uses were in the Topical Sun, Cleaning Teeth/Mouth, Skin Care, Anti-Insect Stings, Perfume Compounds and Hair Dyeing areas.

This study identified 2288 granted patents by United States Patent and Trademarks Office (USPTO) related with the use of essential oils and terpenics/terpenoids compounds in the pharmaceutical and cosmetic sectors amongst 1980-2003. The most important applications in both sectors were registered in the Graph 1.

From 667 owners of 2,288 patents (companies, governmental agencies, universities and researches centers, Individually Owned Patent), 588 companies answered by 1,952 patents. Graph 2 shows the top 20 pharmaceutical and cosmetic companies with an average ratio up than 10 patents/firm.

Table 1 shows some examples of technological uses of essential oils and terpenic/terpenoids compounds in the fields of pharmaceutical and cosmetic inventions.

Methodology

The databank was elaborated by the keyword search mechanism (essential oil(s), terpenic(s) and terpenoid(s) in the fields of 'Claims' and 'Abstract' of granted patents made available in the On Line database of United States Patent and Trademarks Office (USPTO; http://patft.uspto.gov/netahtml/search-adv.htm). The technological knowledge and the data about the owners of patents rights were catalogued by the reading of bibliographical informations described in patents.

Table 1. Examples of technological uses of essential oils and terpenic/terpenoids compounds in the fields of pharmaceutical and cosmetic inventions

No of USPTO granted patent	Description
US 4,209,529	A new compound, farnesyl carboxylic acid alpha -bisabolol ester, synthesized by esterification of farnesyl carboxylic acid or its derivatives with alpha -bisabolol or a derivative thereof, is a novel mucosal stabilizing agent showing anti-inflammative and anti-ulcerative activities.
US 6,258,602	A cDNA encoding (E)-beta-farnesene synthase from peppermint (Mentha piperita) has been isolated and sequenced, and the corresponding amino acid sequence has been determined. Recombinant (E)-beta-farnesene synthase may be used to obtain expression or enhanced expression of (E)-beta-farnesene synthase in plants in order to enhance the production of (E)-beta-farnesene.
US 6,528,041	The invention relates to a process for the preparation of 1-Propyl-2, 4, 5-trimethoxybenzene useful as a aroma molecule and as a starting material and intermediate for preparation of various drugs. The process comprises providing crude calamus oil or beta-asarone (cis-2,4,5-trimethoxy-1-propenylbenzene) in a solvent (extracted from Orthodon calveriei Level, Acorus gramineus and Acorus calamus)
US 6,444,233	The present invention relates to the novel use of Acacia victoriae (Benth.) (Leguminosae) pods and roots for the isolation of novel biologically useful compounds like triterpene saponins as novel anti-cancer and other biologically useful compounds. One embodiment of the invention provides a saponin composition comprising a triterpene or other aromatic terpenoid (I) composition or saponins linked to a glycosidic group (II).

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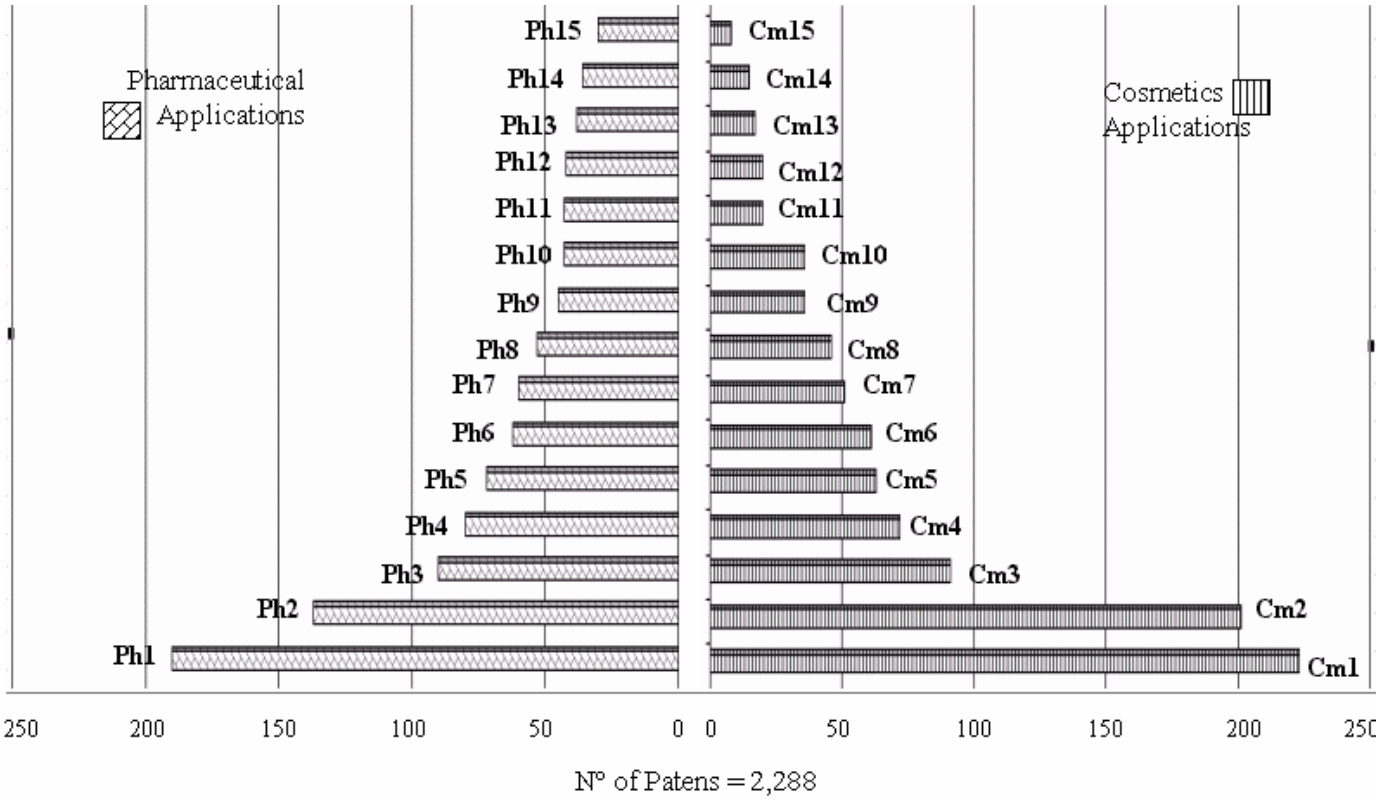
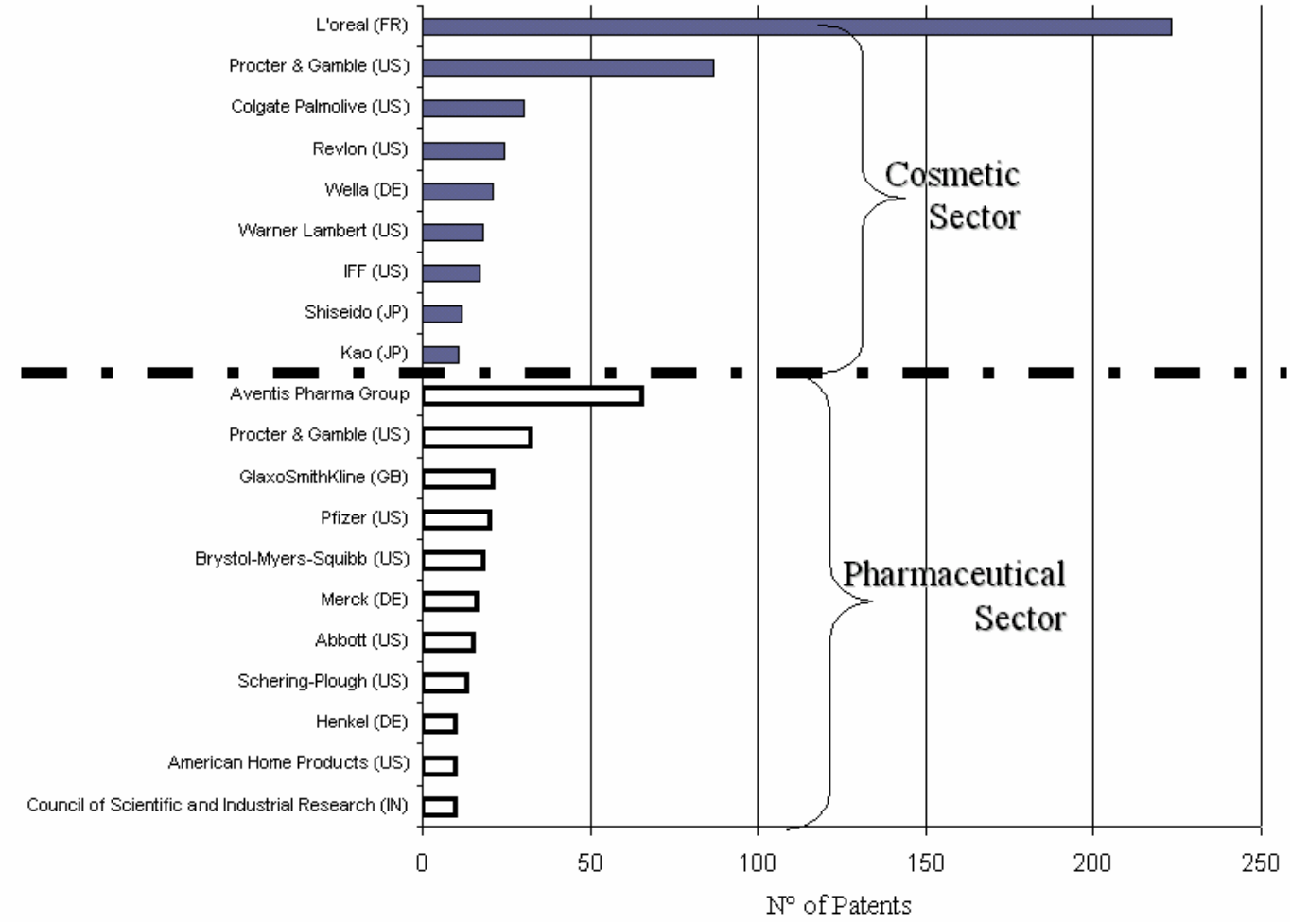
Graph 1. Pharmaceutical and Cosmetic applications described in the USPTO granted patents for the use of essential oils, terpenics/terpenoids compounds between 1980-2003



Ph1 - Dermatological compositions; Ph2 - Antibiotic compositions; Ph3 - Analgesic compositions; Ph4 - Nutritional compositions; Ph5 - Antiinflamatories compositions; Ph6 - Neurological compositions; Ph7 - Gastrointestinal compositions; Ph8 - Delivery System compositions; Ph9 - Flavor compositions; Ph10 - Expectorant compositions; Ph11 - Heart diseases treatment compositions; Ph12 - Anticancer compositions; Ph13 - Dental compositions; Ph14 - Osseous tissue compositions; Ph15 - Dietetical Compositions; Cm1 - Topical sun or radiation screening or tanning preparations; Cm2 - Preparations for cleaning the teeth or mouth; Cm3 - Preparations for the care of the skin; Cm4 - Barrier compositions; Chemical agents brought into direct contact with the skin for affording protection against microorganisms or insect stings ; Cm5 - Perfume compositions; Cm6 - Preparations for dyeing the hair; Cm7 - To make-up or to embellish the lips; Cm8 - Manicure or pedicure compositions; Cm9 - Preparations for washing the hair; Cm10 - Anti-perspirants or body deodorants; Cm11 - To make-up or to embellish the skin of the face; Cm12 - To make-up or to embellish the skin of others body parts; Cm13 - Preparations for molding the hair; Cm14 - Shaving preparations; Cm15 - To make-up or to embellish the eyes.

Graph 2. Top 20 USPTO granted patents owners companies related with the use of essential oils, terpenics/terpenoids compounds in the pharmaceutical and cosmetic sectors between 1980-2003.



DE - Germany; FR - France; GB - Great Britain; IN - India; JP - Japan; US - United States of America. Aventis Pharma Group is a French-German company formed in 1999, after merger of French Rhône-Poulenc and German Hoechst Marion Roussel (HMR) - the pharmaceuticals division of the German Hoechst AG.

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