Phytochemical and antimicrobial screening of medicinal plants for the treatment of acne

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Calendula Oficinalis leaves and flowers have been reported to possess many pharmacologic activities which includes antioxidant, anti-inflammatory, antibacterial and antiviral activities. Phytocconstituents isolated from this plant are triterpenoids, sitosterols, stigmasterols, lupeol, quercitin, alfa-tocoferol.

It’s extract was screening for it’s antimicrobial activity using agar disc diffusing method. The antimicrobial activities were studied against acne causing bacteria namely Staphylococcus aureus, Staphylococcus epidermis and Propionibacterium acnes.

Presence of triterpenoids in Calendula Oficinalis is known to provide anti-inflammatory activity. It was also reported that esters of faradiol-3-myristic acid, faradiol-3-palmitic acid and 4-taraxasterol are the three most active compounds to reduce edema and the flavonoids, demonstrated antibacterial activity against Propionibacterium acnes.

The results clearly indicated that scientific studies carried out on that medicinal plant, possessing traditional claims of effectiveness in skin disorders, provided fruitful results. Therefore extract of Calendula Oficinalis possessing broad-spectrum activity could be utilized in treating acne vulgaris and formulating anti-acne herbal products.

References:

Wound Healing and Anti-Inflammatory Effect in Animal Models of Calendula officinalis

Evidence-Based Complementary and Alternative Medicine Volume 2012, 375671, 7 pages
Leila Maria Leal Parente, Ruy de Souza Lino Junior, Leonice Manrique Faustino Tresvenzol, Marina Clare Vinaud, Jose Realino dePaula, and Neusa Margarida Paulo

Calendula officinalis L. (Compositae) is an annual herb from Mediterranean origin. It is believed that it has been introduced in England during the 13th century [1] and found in Europe as a cultivated plant. Wild plants are rare [2]. Its medicinal use seemed to be most diffused from the 13th century and especially in the wound healing aspect. It was used as balm and creams, as antiseptic and antiinflammatory agents during the north-American civil war as well as in the first World War [2, 3]. The flowers of C. officinalis are found in chapters which may distinguish the varieties through its color and size. They have medicinal use especially as an anti-inflammatory agent, for the treatment of wound, first-degree burns, contusions, and skin rashes. The German sanitary authorities recommended its topic use in leg ulcers and its internal use only against inflammatory lesions in the oral and pharynx mucosae [4–6]. The main chemical components found in the flowers are saponins, triterpenes, alcohol triterpenes, fatty acid esters, carotenoids, flavonoids, coumarines, essential oils, hydrocarbons, and fatty acids [7–9]. The anti-inflammatory activity of C. officinalis flowers cultured in Europe and Asia has been evaluated and evidenced through the model of edema induction of the ear through croton oil and the model of edema induction of the paw through carrageenan [2, 3, 7, 10–12]. The angiogenic activity of the aqueous extract of C. officinalis cultured in England was also evidenced [13]. Most of the literatures that report the medicinal activity of C. officinalis were performed in European or Asian countries from plants cultured in those locations. The different conditions of culturing a plant may alter some specific patterns of the vegetal metabolism which may activate or inactivate some metabolic pathways [14]. This study aimed at the evaluation of the wound healing and antibacterial activities of the ethanolic extract and its fractions from the flowers of C. officinalis.

References

BIBLIOGRAFÍA CALENDULA OFICINALIS


**Medicinal plants used in treatment of inflammatory skin diseases**

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Calendula officinalis L. (marigold) is native to the Mediterranean countries. It has characteristic yellow-orange flower heads. Active ingredients of the calendula flower are triterpene saponins (oleanolic acid glycosides), triterpene alcohols (α-, β-amyrisns, faradiol), and flavonoids (quercetin and isorhamnetin) [20–22].

Anti-inflammatory effects of Calendulae flos are related to the content of flavonoids and triterpene derivatives. Isorhamnetin 3-glycosides isolated from calendula flowers inhibited lipoxygenase. Oleanane-type triterpene glycosides exhibited a marked anti-inflammatory activity in the TPA-induced inflammation in the mouse ear [20, 21]. Calendulae flos extract, the main components of which are triterpenoids, applied topically, inhibited the croton oil-induced oedema in vivo. The activity of this extract
(at high concentration) and faradiol was comparable to that of indometacin (anti-inflammatory synthetic drug) [20–22].

References:

Plants used to treat skin diseases


Nahida Tabassum and Mariya Hamdani

Calendula officinalis (Common name: Marigold; Family: Asteraceae)

The flowers of marigold have long been employed in folk therapy and more than 35 properties have been attributed to decoctions and tinctures from the flowers. The main uses are as remedies for burns (including sunburns), bruises and cutaneous and internal inflammatory diseases of several origins. Topical formulations containing marigold extract (ME), evaluated in hairless mice against UV-B irradiation-induced photo damage, revealed that application of ME in gel formulation, containing 0.21 μg/cm of narcissin and as 0.07 μg/cm of the rutin in the viable epidermis, were associated with a possible improvement in the collagen synthesis in the sub epidermal connective tissue.[24]

One of the experiments carried out in 34 patients with venous leg ulcers to determine the therapeutic efficacy of ME on the epithelialization of lower leg venous ulcers revealed significant acceleration of wound healing by producing epithelialization.[25] Research conducted on cream preparations containing seven different types of marigold and rosemary extracts, revealed that such creams are effective in experimentally induced irritant contact dermatitis when tested on healthy human volunteers.[26]

References:
Calendula officinalis topically it acts as an anti-inflammatory and vulnerary, healing the skin and reducing redness and swelling. It has also been found to increase the growth of new skin in wounds and leg ulcers, helping them to heal up faster. To add to this, Calendula is also antimicrobial, and was found to be more effective than methylparaben at inhibiting a range of bacteria and yeasts, indicating that it could be used in cosmetics to prevent bacterial or yeast growth.

It can also be used on burns to help reduce the inflammation and speed up healing, and one study found that healing from burns was improved even when the Calendula was taken internally. This was thought to be due to promotion of new skin regrowth, and improved antioxidant defence mechanisms.

References:


**Effects of topical application of *Calendula officinalis* gel on collagen and hydroxyproline content of skin in rats**

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In this investigation, the effects of different concentrations of *Calendula officinalis* gel on collagen and hydroxyproline content of the skin are studied. Sixty-five mature male rats were randomly divided into three groups (control, placebo, and treatment group). Under sterile conditions, a 2 × 2-cm piece of cervical skin was excised in each animal. Treatment group received a daily topical application of 5%, 7%, and 10% C.
officinalis gel, the placebo group received a daily topical application of the base gel, and the control group received no treatment during this experimental study. Fourteen, 21, and 45 days later, the rats were euthanized and biopsies were taken from the site of the initial incisions and samples were collected for biochemical investigation. Collagen production in the group treated with 7% gel was significantly more than the placebo and control group. Upper and lower doses seem to be less effective, although the reasons for this remain unclear.

Antioxidant capacity of calendula officinalis flowers extract and prevention of radiation induced oropharyngeal mucositis in patients with head and neck cancers: a randomized controlled clinical study

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Calendula officinalis, commonly known as Marigold, is used in the Western and Asian countries for its anti-inflammatory properties [10]. According to some reports, the extract of this plant possesses some pharmacological activities which include antioxidant action, anti-inflammatory, antibacterial, antifungal, and antiviral properties [11]. Results of one clinical trial showed that calendula officinalis was highly effective in the prevention of acute dermatitis in patients with cancer undergoing postoperative irradiation [12]. It was observed that this plant has cytotoxic effect on tumor cell lines in vitro and anticancer activity in vivo[13].

References: