

Do products containing *Calendula officinalis* have a positive role in treating uterine cervix disorders?

Nicolae Bacalbasa^{1,2}, Irina Balescu³, Claudia Stoica^{4,5}, Lucian Pop⁶, Valentin Varlas^{1,7}, Cristina Martac⁸,
Andrei Voichituiu^{1,6}

¹Department of Obstetrics and Gynecology, "Carol Davila" University of Medicine and Pharmacy, Bucharest, Romania

²Department of Visceral Surgery, Center of Excellence in Translational Medicine, Fundeni Clinical Institute, Bucharest, Romania

³PhD Student at "Carol Davila" University of Medicine and Pharmacy, Bucharest, Romania

⁴Department of Anatomy, "Carol Davila" University of Medicine and Pharmacy, Bucharest, Romania

⁵Department of Surgery, Ilfov County Emergency Hospital, Bucharest, Romania

⁶Department of Obstetrics and Gynecology, "Alessandrescu-Rusescu" National Institute of Mother and Child Care, Bucharest, Romania

⁷Department of Obstetrics and Gynecology, Filantropia Clinical Hospital, Bucharest, Romania

⁸Department of Anesthesiology, Fundeni Clinical Institute, Bucharest, Romania

ABSTRACT

Once screening tests and national programs for early detection of cervical cancer have been widely developed, a significant number of patients are diagnosed with preneoplastic lesions at this level; therefore, in such cases, a conservative treatment is feasible, increasing therefore the possibility of fertility preservation and conceiving. Meanwhile, after performing an invasive maneuver at this level attention should be focused on obtaining an adequate healing process at this level.

The aim of the current paper is to conduct a literature review regarding the benefits of *Calendula officinalis* in maximizing the healing process after local invasive procedures at the level of the uterine cervix as well as on human papilloma virus infection prevention.

Keywords: *Calendula officinalis*, cervical disorders, human papilloma virus

INTRODUCTION

Once the national programs of early diagnosis of cervical cancer as well as the screening programs for human papilloma virus infection have been widely implemented, an increasing number of cases are diagnosed with benign or premalignant cervical conditions. In such cases, a conservative treatment can be safely applied with good results [1-3]. Meanwhile, fertility preservation can be easily obtained and can further increase the chances to conceive and give birth in good conditions [4].

However, in order to obtain this desiderate, it is mandatory to obtain a good healing process at the level of the uterine cervix and furthermore, to re-establish a normal pH of the environment and a normal vaginal flora. Once these conditions are obtained, the risk of developing further infections such as human papilloma virus infection decrease

and so will do the risk of developing other premalignant cervical conditions [5-7].

In this respect, in the last decade attention was focused on identifying which homeopathic principles might be introduced in different vaginal products such as vaginal ovules.

THE HOMEOPATHIC PROPERTIES OF *CALENDULA OFFICINALIS*

Also known under the name of pot marigold, *Calendula officinalis* has been cultivated in Europe for centuries and has been used with therapeutic purposes in order to treat external lesions such as chronic wounds and inflammatory lesions [8-10]. Belonging to the Asteraceae family, this plant flourishes between May and October and it contains multiple components such as sesquiterpenes, triterpene

Corresponding author:
Nicolae Bacalbasa
E-mail: nicolae_bacalbasa@yahoo.ro

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saponins and alcohols, flavonoid glycosides and carotenoids, xanthophylls, phenolic acids, steroids, mucilage, tocopherol and calenduline [11]. The extract obtained from *C. officinalis* flowers has been widely used in Europe since the 12th century for the anti-inflammatory, antimicrobial and hemostatic effects [12,13].

Moreover, the therapeutic effects of this plant in regard to wound healing was also analyzed in large clinical trials [8,14]. Meanwhile, other authors went even further and analyzed which type of extract seems to have a maximal effect in regard to Gram-negative, Gram-positive and fungi development; therefore, in the study conducted by Efstratiou et al. and recently published in *Complementary Therapies in Clinical Practice* the authors came to demonstrate that methanol extract had a better effect when compared to ethanol extract in regard to the antibacterial effect while the antifungal effect was similar. The authors demonstrated that this extract was particularly efficient on *Escherichia coli*, *Staphylococcus aureus*, *Klebsiella pneumoniae* and *Enterococcus faecalis* [15].

When it comes to the pathways of action, multiple actions have been described so far; therefore it is estimated that *Calendula officinalis* extract is effective for collagenase inhibition and in the meantime for interleukine 8 (IL-8) modulation [16,17]. In the meantime certain authors also tried to establish a mathematical formula through which the per cent of wound closure is calculated, this formula taking into account the surface of the open wound area at the initial moment as well as the open wound area at a certain time of evolution [18]. All these attempts aimed to offer a more exact measurement parameter in order to better evaluate the healing process.

THE BENEFITS OF ADDING *CALENDULA OFFICINALIS* EXTRACT IN THE VAGINAL PRODUCTS

All these properties transformed *Calendula officinalis* into an active homeopathic principle which seems to be effective in treating different types of uterine cervix lesions. Therefore, it is well known the fact that uterine cervix is in fact a natural barrier which prevents the ascension of the pathogenic bacteria from the vagina into the uterine cavity. Meanwhile, vagina is perfectly adapted in order to allow the development of certain species of bacteria and to maintain a normal acid pH due to the presence of lactic acid. In cases in which this equilibrium is destroyed pathogenic bacteria might develop and uterine cervix lesions might occur. In such cases germs such as *Escherichia coli*, *Enterococcus faecalis*, *Chlamydia*, *Neisseria* and even fungi might be present at this level leading to the apparition of cervical inflammation. In this respect, it can be easily understood the fact that introduction of this extract

in the composition of different products with topical, intravaginal administration can significantly improve the healing process of such inflammatory uterine cervix lesions [16-18]. This aspect also plays a crucial role in decreasing the chances to achieve a human papilloma virus infection; therefore, it has been widely demonstrated that both human papilloma virus infection and preneoplastic conditions of the uterine cervix are increased in patients in whom an increased vaginal microbiome diversity is encountered. Therefore, once this microbiome is reestablished at normal features after a treatment with *Calendula officinalis* the chances to develop a human papilloma virus and even a preneoplastic cervical lesion decrease [5,6].

An interesting study which aimed to analyze the potential antibacterial effects of *Calendula* when administered intravaginally included 80 women with different types of vaginal infections who were treated by administering *Calendula* ointments and their results were compared to those reported in a similar group of patients in whom Metronidazole was prescribed. The authors underlined the fact that after one week of treatment, similar outcomes were observed between the two groups. Therefore, in both groups the patients reported a significant improvement in terms of symptoms such as dyspareunia, dysuria, burning, itching and odor [19]. The results of this study were even more valuable due to the fact that the patients were randomly assigned to one of the two groups. Meanwhile, the authors also analyzed the pH modifications during the treatment, an objective mean which came to demonstrate the efficacy of the treatment [19].

Another important property of *Calendula officinalis* is the angiogenic one, this extract being particularly effective in inducing neo-vascular formation and re-epithelisation; in this respect, topic agents containing this extract seems to play a crucial role in the process of healing of uterine cervix wounds resulting after performing limited surgical procedures at this level [19-21].

CONCLUSIONS

Calendula officinalis represents a promising homeopathic principle which seems to influence in a positive manner the healing process of different cervical lesions or the one after limited gynecological procedures. Meanwhile, it seems to have a positive antibacterial effect, increasing therefore the chances to re-establish the normal vaginal flora. Through this effect it seems to have a protective effect on developing other human papilloma virus infections.

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