

# ARSUTRAT-PLAGOTRAT, NATURAL VETERINARY PRODUCT FOR CARE OF WOUNDS AND BURNS OF DIFFERENT CAUSES

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## **Abstract**

*The paper presents the research and the experimental results for a new phytotherapeutic product, Arsutrato-Plagotrat gel for veterinary use, designed for the care of burns and wounds of different causes, and also of some forms of dermatitis. As composition, the product is a balanced combination of natural compounds from indigenous medicinal and aromatic plants, namely sea buckthorn and lavender oils, concentrated extracts of Marigold and St. John's wort, and collagen hydrolysate; the product provides direct biocompatible necessary nutrients that increase local immunity, reconstruction and regeneration capacities of affected tissue. This paper focuses on two directions. Firstly, the entire used raw material was investigated for the main active compounds; the used vegetal materials are of organic provenience, from the cultures of HOFIGAL Company and processing is done in GMP conditions. On the other hand, 'Arsutrato-Plagotrat gel' was investigated for its action and proved encouraging experimental results when employed in the cases of 20 subjects (10 dogs and 10 cats) suffering of postoperative wounds, wounds with a high portion of dermal tissue missing, due to bites or entrapment or chemical burns, pyodermitis or systemic lupus erythematosus. The clinical trial and the most representative cases are described in this paper.*

**Key words:** burns, medicinal plants, phytotherapy, wounds

## **Introduction**

At the moment, not many veterinary products have been developed for the treatment of skin affections by natural, phytotherapeutic remedies and little information is available on the subject.

This paper presents the studies and the obtained results for a new phytotherapeutic product with topical use, Arsutrato-Plagotrat gel, designed for the treatment of burns and wounds of various causes (thermal, chemical, solar burns), cuts, bruises and also in the treatment of certain forms of dermatitis.

The study presented in this paper was conducted in two directions. Firstly, a detailed characterisation of the raw materials needed for the formulation is presented. Secondly, the product was submitted to a clinical trial involving feline and canine subjects, the procedure and the obtained results being discussed.

## **Materials and methods**

All used raw materials involved in the pharmacological effects of the Arsutrato-Plagotrat product were individually analyzed in terms of the major phytochemical components. Their chemical composition was largely discussed in literature, as well as their benefits on damaged skin, but the actual association was never done for the stated purpose (Giurgiu E., Giurgiu O.C., 2012).

The vegetal materials come from plants cultivated without chemical treatments and their processing to finished product was made under GMP conditions (Muntean L.S., 1996). This includes sea buckthorn, from which oil was extracted (obtained by cold pressing of sea buckthorn fruits), St. John's Wort and Marigold, from which extracts were obtained by maceration and concentration and lavender from which only the essential oil was used after hydrodistillation (European Pharmacopoea, 2005). Hydrolyzed collagen was purchased from Provital, Spain.

The gel was obtained by the combination of mentioned natural ingredients and collagen with specific formulation agents and the product is further referred as **Arsutrat-Plagotrat gel**.

Destined for external administration for small animal companions (cats and dogs), clinical tests were driven in order to prove its efficiency. Those were conducted within the Faculty of Veterinary Medicine's clinic in Bucharest, under the guidance of physicians from different specialty clinics (Surgery Clinic, Medical Clinic, Obstetrics and Gynecology Clinic).

For each studied animal, a file has been created, which contains:

- The owner's accord to administer the gel product to their animal, following the attending physician's indications, for the entire treatment period.
- The animal's observation paper, accompanied by photographs of lesions from the beginning of the treatment, based on diagnosis, and from the end of the treatment.
- There were also noted the: administered doses, time of administration, eventual adverse reactions and other observations made by owners during the treatment. (Pop P., Cristina R.T., 1995).

The Arsutrat-Plagotrat gel has been used in surgical, accidental, decubital lesions, lesions auto-induced by grating, licking, puncturing or biting, over-infected lesions, dermatitis of different etiologies (for example, the eosinophilic plaque), burns produced by fire, water and hot vapors, or by the action of caustic chemical substances.

In what the method of administration is concerned, the affected area has been sanitized by trimming the fur and washing the area with ordinary anti-septic substances. The gel was applied by light massage until it entered the skin, after which the area was protected by applying a sterile bandage (depending on case). It has been applied 2-3 times a day, for 5-7 days, or until the healing process was complete.

### **Results and discussion**

Concerning the composition, the product is a well balanced combination between of plant extracts, with known favorable properties in dermatological practice and hydrolyzed collagen, also recognised for its broad therapeutic properties.

Sea buckthorn (*Hippophae rhamnoides*) contains: flavonoides (Quercetin, Isorhamnetin-3-Beta-D-glucosides); triterpens; sterols (sitosterols); vitamin C; carotenoids ( $\alpha$ - $\beta$ -carotene, criptoxantina, licopina, zeaxantina); vitamins: B1, B2, D, E, PP, P; proantocianides; lipids (glicerides of palmitic, linoleic and linolenic acids, minerales: Fe, Se, Zn, K, Na, Ca, Mg, Cu, Mn; etc. It has antioxidant; regenerating; cicatrizing antiinflammatory; tonifying and vitaminizing properties

Sea buckthorn oil has in its composition, aside from free and esterified essential fatty acids, complex structures like lipo- and glyco-proteins, lecithin, enzymes, carotenoids, phytosterols, vitamins and microelements (Brad I., 2002).

St. John's Wort extract (*Hypericum perforatum*) contains, besides hyperin, hypericin and isomers (with regeneration properties), an important phytochemical complex (carotenes, flavones, vitamins - C, B, PP, saponins, sesquiterpenes, minerals, etc.) that improves local blood circulation by nourishing and relaxing the smooth muscle in blood vessel walls and helps the transport of essential nutrients that restore and release toxic metabolites of degradation.

Marigold extract (*Calendula officinalis*) has cortisone-like anti-inflammatory properties, given by the triterpene saponosides (ursolic acid, oleanolic acid etc.) and soothing, healing and antibacterial properties given by the terpenoids from essential oils. The whole complex of molecular species are working together to stimulate the restoration of normal dermal tissue (Pârvu C., 2000).

Lavender essential oil (*Lavandula angustifolia*) contains linalil acetate, geraniol, borneol, terpineol, izogeraniol, amilic alcohol, izoamilic alcohol, etc. and it is used for its calming, antimicrobial and healing properties. (Bojor O., 2003).

Hydrolysed collagen accelerates the regeneration of tissues enabling a wide variety of amino acids and short peptides to damaged skin and encreasing its elasticity.

The rich composition in natural components and the synergic activity of chemical constituents stipulate decongestive, anti-inflammatory, scarring, analgesic and regenerative properties useful for the affected cutaneous tissue.

Concerning the clinical trial, the lot of subjects rised to 33 animal patients of which 18 canine species and 15 belonging to feline species, which presented various types of skin ailments and possibly of tissue underlying the areas of interest.

Some of the cases are presented, with indications upon the most concludent differentiation criterias (breed, sex, age, diagnostic, treatment information, healing time) and the picture of the wound.



Fig.1 Canine, Beagle, female, 1 year; post-surgery neuter wound; local treatment with Arsutrat-Plagotrat gel, 2 times/day after asepsis of the area; healing after 2 weeks



Fig. 2 Feline European, male, 8 years; skin lesions on dorsal region; local treatment with Arsutrat-Plagotrat gel, 2 times/day after asepsis of the area; healing after 2 weeks



Fig. 3 Canine, Metis, male, 1 year 6 months; post-surgery wound after front-left limb amputation; local treatment with Arsutrat-Plagotrat gel, 2 times/day asepsis of the area, healing after 2 weeks

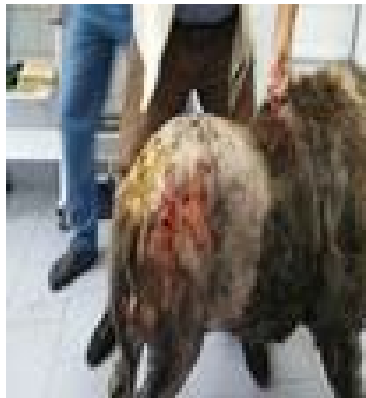


Fig. 4 Canine, Caucasian shepherd, male, 10 years; posterior limbs over-infected moist dermatitis; local treatment with Arsutrat-Plagotrat gel, 2 times/day asepsis of the area; healing after 2 months



Fig. 5 Canine, York Shire, female, 1 year 6 months; vasculitis; local treatment with Arsutrat-Plagotrat gel, 2 times/day asepsis of the area; healing after 1 month



Fig. 6 Canine, Metis, male, 11 years; chronic over-infected proliferative dermatitis; local treatment with Arsutrart-Plagotrat gel, 2 times/day asepsis of the area; healing after 1 month

During the treatment with Arsutrart-Plagotrat-gel product, in or without association with other products/solutions that favorise the asepsis of the area, it was proved that, because of the rich composition in natural components with synergic activity, it offered decongestive, anti-inflammatory, scarring, analgesic and regenerative properties to the affected cutaneous tissue.

The product, in the pharmaceutical form of a gel, it is easy to apply locally by spreading it with a sterile spatula after cleaning and disinfecting the wound.

In contact with the tegument, the product quickly enters the skin, acting upon the peripheral sanguine torrent, enhancing active principles by substance exchange on the tissue's level, contributing to the regeneration of the affected cutaneous tissue. The hydro- and liposoluble composition and by the small volume molecules (from essential oil, fatty oils, plant extracts, etc.) allow the crossing through cell membranes and the interaction with cellular receptors.

The pH of the product ranges between 5,5 and 6,5, similar to the normal pH of skin.

All patients received complete healing with good and very good results. Although most injuries were due to surgical incisions that were sutured, in which case, the Arsutrart-Plagotrat gel acted beneficial in terms of healing speed and final appearance of the scar (fine, discrete, inhibiting the reactions of a foreign body to the wire suture), the use of Arsutrart-Plagotrat gel has proved to be extremely beneficial to allergic or autoimmune dermatological diseases (side healings using Arsutrart-Plagotrat gel being superior in terms of the final appearance of the wound) or even oncologic, where besides cutaneous wound healing, delimitation of tumor formation increased, which is extremely useful for subsequent oncological surgery.

### **Conclusions**

1. A new phytotherapeutic product with topical use, Arsutrart-Plagotrat gel, was developed.
2. The vegetal material's chemical composition used in the formulation of the product (sea buckthorn oil- obtained by cold pressing; concentrated extracts of St. John's Wort and Marigold; lavender essential oil) indicates a large number of structures with healing, anti-inflammatory and soothing properties; the hydrolyzed collagen contributes to the regeneration of affected tissue.
3. The product, in the pharmaceutical form of a gel, is easy to apply locally and it shows very good skin absorption;

4. Destined for external administration for small animal companions (cats and dogs), a clinical trial was conducted on a lot of 33 animals, for each, an observation file being created. The most suggestive cases are presented in the paper.
5. Driven clinical tests proved that the product has a very high efficiency; moreover, healing speed is enhanced and final appearance of the wounds is fine and discrete.

#### **Bibliography**

1. Bojor O., 2003 - , Ghidul plantelor medicinale și aromatice de la A la Z, Editura Fiat Lux, București.
2. Brad I., 2002 - , Cătina albă : O farmacie într-o plantă, Editura Tehnică, București.
3. European Pharmacopoea, 2005 - European Pharmacopoea 5th Ed., Strasbourg 2136-2137 Council of Europa
4. Giurgiu E., Giurgiu O.C., 2012 - Plantele medicinale importante in tratamentele naturiste, Ediția a II-a, ilustrată și adăugită – p. 187, 324, 1215, Bucuresti
5. Muntean L.S., 1996 - Cultura plantelor medicinale și aromatice, Editura Dacia, Cluj-Napoca.
6. Pârvu C., 2000 - Universul plantelor – Mică enciclopedie, ediția III, Editura Enciclopedică, București, p. 251, 109, 328, 643.
7. Pop P., Cristina R.T., 1995 – Dermatologie medicala veterinara, Ed. Mirton, Timisoara.