

## INVESTIGATION THE PROPERTIES OF ARNICA FLOWER EXTRACT ON THE HUMAN SKIN MICROBIOTA

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**Introduction.** Skin microbial communities and human cells form a dynamic ecosystem with mutual interactions and divergent aftereffects on a patient's health. Beneficial, commensal, and harmful microbes are known to produce bioactive molecules that influence skin condition. Other mechanisms of mutual effects include levels of bacterial colonization (whether it is extensive or limited), diversity of organisms, formation of bacterial biofilm, ability to modify metabolites chemically or alter pH. Thus, the qualitative characteristics of the microbial ecosystem are possibly the underlying factor of many recalcitrant wounds. Furthermore, when using the term 'skin microbiota', it is also necessary to recognize the variability in microbial communities connected with different environmental conditions among hosts and different human body areas. Habitat characteristics depend on the occurrence of eccrine and apocrine sweat glands, sebaceous glands, and hair follicles. Compared with the gut environment, which is plentiful in sources of nourishment, the skin is significantly unstable, nutrient-depleted and relatively dehydrated. Survival in such conditions required adaptation of local microbes, i.e., utilizing the resources present in sweat, sebum and the stratum corneum. Consequently, environmental changes resulting from topical treatment, cosmetics with diverse composition and properties and herbal remedies can significantly impact the local microbiota. Previously, we conducted a study of the composition of arnica montana flowers by HPLC[1].

**The aim of the study** is investigation the properties of arnica flower extract on the human skin microbiota

**Methods of research.** Plant material (1g) was extracted with 80% methanol (2x5 ml) in an ultrasonic bath (temperature 35°C, 30 min). The obtained extracts were centrifuged (15 min), then transferred to a flask and 80% methanol was added to a volume of 10 ml. The samples were filtered through a 0.22 µm membrane filter (ChemLand, Szczecinski, Poland).

**Main results.** The arnica flower extract was incubated with the human skin microbiota from six healthy donors. The research methodology is presented in the work[2]. The microbiota-triggered biotransformation of the arnica flower extract was observed. It should be considered as a potential factor influencing the extracts' activity in the treatment of skin diseases.

**Conclusions.** So, Arnica montana is a promising type of medicinal plant material for further pharmacognostic research.

### References.

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