



# AQUACOMBINE



Laboratory sample preparation for testing of plant extracts – general situation Rocco Giordano

## **Anti-inflammatory and regenerative effects of Halophyte Bioactive Extracts on common skin diseases**

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The circular approach of AQUACOMBINE combines aquaculture, farming and bioprocessing to utilize all fractions of the produced biomass and produce value added food, feed, bio-compounds and bioenergy.

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## Anti-inflammatory and regenerative effects of Halophyte Bioactive Extracts on common skin diseases

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Halophyte plants are salt-tolerant and are acclimated for growth in saline soils such as along coastal areas. Among the halophytes the *Salicornia* species have been used as both folk medicine and functional feed for multiple years due to high levels of bioactive compounds including anti-inflammatory and antioxidative effects. Halophyte farming in synergy with aquaculture may be used to create high value-added products in the cosmetic and pharmaceutical industry through the implements of continual use of resources and waste through prevention, reduction, and recycling. The properties of *Salicornia* bioactive extracts, for modulation of pain and itch sensation, remain still unclear. Prior to clinical assessment of such *salicornia* extract on skin conditions the effect of the prolonged application of aqueous extracts have to be addressed using healthy subjects. In an exploratory study we obtained ethical approval to test 30 healthy volunteers for treatment with 10% *Salicornia* cream or inert vehicle cream for 24 or 48 hours. On day 0, and 24 or 48 hours post cream application thermal detection and pain thresholds, mechanical pain thresholds and sensitivity, and micro-vascular reactivity were assessed to evaluate the effects of cream containing *Salicornia*. Our data indicate an overall effect of the bioactive cream to reduce histamine induced itch although the study design and time-frame selected also show need for further assessment of the long-term effect after prolonged use. Future use of green technologies and renewable ingredients, as the *S. ramosissima* infused skin cream, as a putative primary treatment to reduce symptoms like itch and pain in different skin diseases, such as psoriasis and atopic dermatitis, could be favorable. Reference: 10.3390/ph15020150



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