IRAP125

Acaí berry oil immobilization in hydrogel membranes

Ana Carolina H. R. Machado, Sizue O. Rogero, Ademar B. Lugão

IPEN / CNEN-SP – Instituto de Pesquisas Energéticas e Nucleares. Av. Professor Lineu Prestes, 2242 – Cidade Universitária – São Paulo / SP – CEP: 05508-000

Poly-vinyl-pyrrolidone (PVP) hydrogels has been of great interest of pharmaceutical market for its use as dressings and controlled release systems. They are produced by ionizing radiation and protect the skin against microorganisms, allow the permeability of the oxygen, absorb exsudates and make possible the incorporation of many active ingredients. Acaí berry oil is rich in antioxidant substances, as the antocianins, and essentials fatty acids, mainly Omega 3 and Omega 6, fundamental substances in the process of skin regeneration.

Considering this efficient association in the treatment of the attacked skin, this work compared the physical-chemical properties of two different PVP hydrogel membrane formulations containing Acaí berry oil: i) hydrogel of PVP and poly-ethylene-glycol (PEG) and ii) hydrogel of PVP and glycerol. The devices were submitted to tests of swelling, gel fraction and tensile strength.

The gel fraction and swelling results of hydrogels membranes with Acaí berry oil were bigger, in consideration to pure hydrogel, in such case the percentage of swelling of PVP + glycerol membrane was about three times bigger than that in PVP + PEG membrane.

The obtained results indicated that PVP + glycerol hydrogel membranes showed better mechanical properties than that of PVP + PEG, even after the immobilization of Acaí berry oil. Therefore, this membrane showed to be strong candidate to constitute a polymeric matrix for incorporation of Acaí berry oil with the dermatological treatments purpose, due to the presence of substances which are fundamental in the cellular regeneration process.