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NEW TECHNOLOGY FOR PREPARATION OF CELLULOSE/ELASTIN MEMBRANES BASED ON SURFACTANTS AND THE MECHANISM FOR SEPARATING TURMERIC FROM AQUEOUS SOLUTIONS

Key words: *gemini and bola surfactants, cellulose/elastin membranes, mechanism of turmeric from aqueous solutions.*

In this research, the influence of a gemini surfactant: polymethylene-α, ω-bis (N, N-dialkyl-N-deoxy-d-glucitolammonium iodides and bola amphiphilic: demecarium bromide upon the cellulose/elastin membrane preparation and separation mechanism of turmeric from aqueous solutions were studied by: FTIR-ATR spectroscopy, scanning electron microscopy, dynamic light scattering, separation rates and microbiological tests. The tensile strength and hydrophobic capacity of cellulose/elastin membranes were improved by introducing a surfactant (gemini or bola), in preparation technology. Surfactants influenced the microporous structure of cellulose/elastin membranes and retention of turmeric from aqueous solutions. The cellulose/elastin membranes based on surfactants were produced by a casting-solvent evaporation technique. The cellulose and elastin powder, in ratio 1:1, were dissolved in a water-acetic acid (60:40 v/v) solution with and without plasticizer: glycerol and surfactant (gemini or bola), constant continuous stirring for 3-7 hrs. at 82ºC, then degassed the solution for 4 hrs. The solution was poured and afterward maintained in the oven at 60-65°C for 2-3 hrs. Ecological cellulose/elastin membranes based on surfactants are obtained from biodegradable biopolymers (cellulose and elastin) and can be used successfully in removing turmeric from wastewaters. SEM image for turmeric from aqueous solution, retained on the cellulose/elastin membrane with plasticizer and gemini surfactant-polymethylene-α, ω-bis (N, N-dialkyl-N-deoxy-d-glucitolammonium iodides is shown in figure 1.

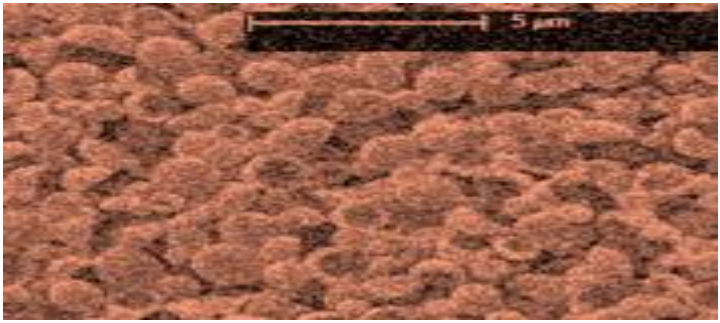

Fig.**1. SEM images for turmeric from aqueous solution, retained on the cellulose/elastin membrane with plasticizer and gemini surfactant: polymethylene-α, ω-bis (N, N-dialkyl-N-deoxy-d-glucitolammonium iodides**

The actual European Community strategy related to the maintenance of the health of population, quality of life, and of the environment encourages the separation through the membranes of organic pollutants (e.g.turmeric from wastewaters). These membranes can be used also as advanced materials in fashion textile industry.

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