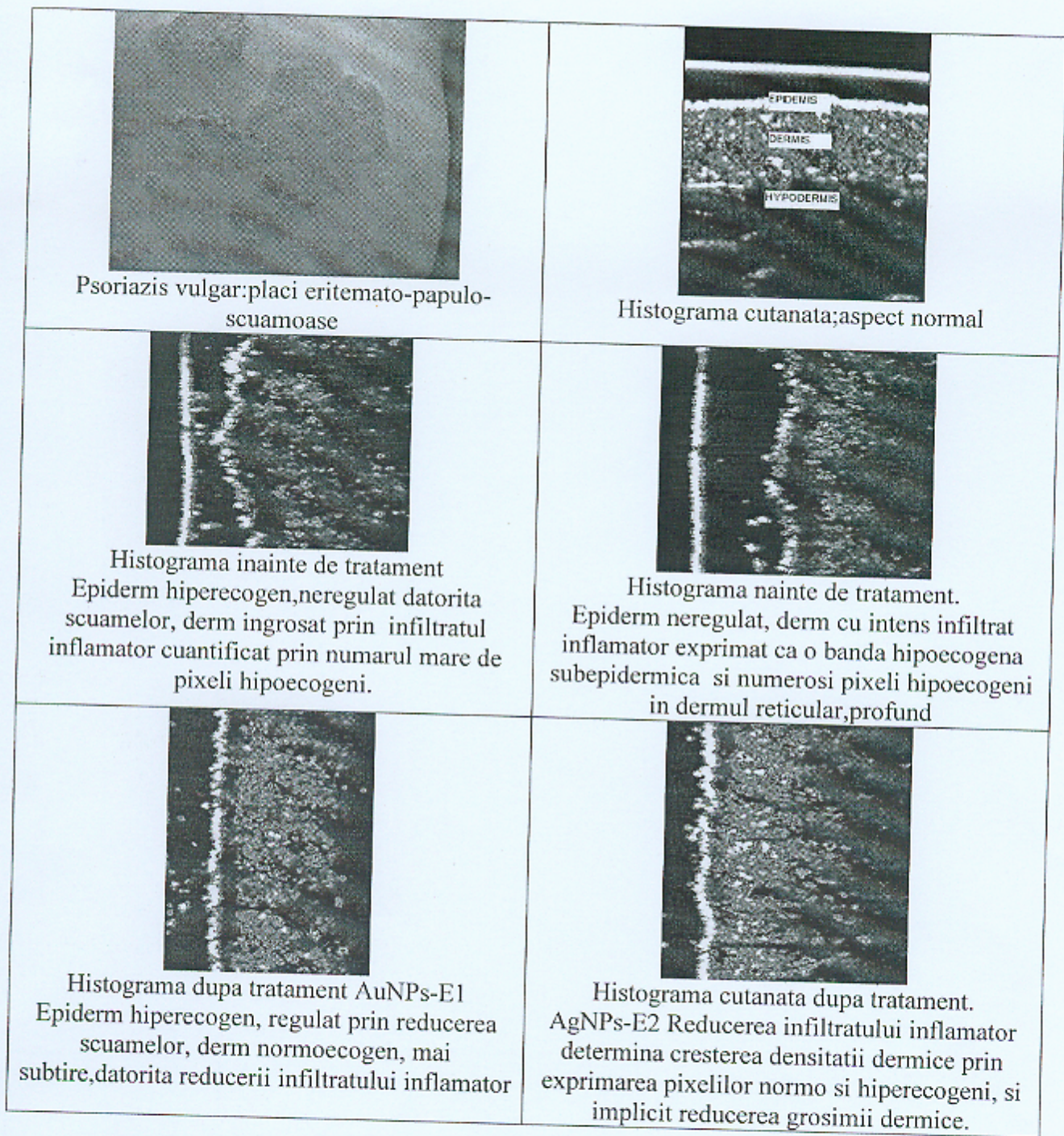


## SHORT ABSTRACT

In the frame of the phase 1 of the project, some natural extracts with high content of anthocyanins (>60%) from *European cranberry bush* and *European black elderberry* were obtained and characterized. These extracts were used to get by direct reduction noble metallic nanoparticles (gold and silver). The optimal conditions for their obtaining were determined, together with their characterization by transmission electron microscopy (TEM), UV-Vis spectroscopy, Fourier-transform infrared spectroscopy (FT-IR), X-ray diffraction (XRD), energy-dispersive X-ray spectroscopy (EDX) and thermogravimetric analysis (TGA). Studies *in vivo* and *in vitro* were made in order to determine the cytotoxicity and the antiinflammatory effects of the new products. The tests MTT and ELISA ( for IL1 $\alpha$  and IL6 cytokins) were used. The results indicated that the *European cranberry bush* and *European black elderberry* natural extracts are not cytotoxic and have produced a masive decrease of IL1 $\alpha$  and IL6 secretion after 24h and 48 h of UV exposure. There were no notable differences between the effects of the two extracts.

Pre-treatment with polyphenols from *European cranberry bush* fruits significantly inhibited edema formation in carrageenan-induced paw edema model and had an important antioxidant effect in serum by diminishing the glutathione oxidation and lipid peroxidation. The local antioxidant effect was exerted mainly by metal nanoparticles functionalised with polyphenols, both from *European black elderberry* as well as *European black elderberry* fruits, compounds that enhance the activity of glutathione peroxidase and increase the level of its cofactor, glutathione. Our results have shown that at low concentrations these compounds are not cytotoxic and have anti-inflammatory properties, some of them as or even better than indomethacin.

All the made analysis permit us to conclude that, in small concentrations, these compounds are not cytotoxic and have a good antiinflammatory action, even better that that of diclofenac. Based on the obtained nanomaterials, specific dermatological creams were prepared. Their effect on psoriatic lesions, in comparison with the hydrocortisone creams was medical studied on a sample of patients. The clinical observations were statistical studied, emphasizing the same theoretical results.



**Fig.1** Histograms before and after treatment with creams based on gold/silver nanoparticles and natural extracts