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SULFATED GALACTANS FROM *RHODOPHYTA* – A PERSPECTIVE DRUG AGAINST DEMODECOSIS

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Etiology of demodicosis is associated with invasion into the skin and intense proliferation of mites belonging the genus (eyelash mites) from the family *Demodicidae* (*Trombidiformes*). Nowadays, about 140 species of *Demodex* mites are described that parasitize on various taxonomic groups of mammals from rodents to higher primates. One could list the great veterinary importance of *D. canis* (including two morphological forms: *D. canis cornei* and *D. canis injai*) for dogs; *D. cati*, *D. gatoi* and *Demodex* sp. (the last species has not yet received a scientific name) – for cats; *D. musculi* – for mice (especially in crowded conditions in vivariums); *D. folliculorum* and *D. brevis* – for humans. Immune deficiencies in humans – especially human immunodeficiency virus (HIV) infection – significantly contributes to the development of the clinical picture of demodicosis. Moreover, dermatological manifestations in HIV infection are markers of progression of the underlying disease.

Treatment of demodicosis is usually based on the use of acaricidal drugs of general effect both orally and externally. However, *Demodex* mites have a thick three-layer cuticle, therefore, antiparasitic preparations of contact action are extremely inefficient, and increasing the dose means increasing toxicity including for skin cells.

The way out can be polysaccharides of a structure unusual for terrestrial animals – e.g. sulfated galactans (class of sulfated polysaccharides) from red algae (*Rhodophyta*) consisting of partially sulphated residues of β -D-galactose and its derivatives connected with alternating α -1,3- and β -1,4-glycosidic chemical bond. Since *Demodex* mites feed on fat secretions, when eating such polysaccharides applied externally, they will be "etched" because of difficulties in digestion.

We conducted a set of experiments on the models of laboratory mice infected by *D. musculi* and dogs infected by *D. canis* using different fractions of sulfated galactans as external agent (1 μ g/ml). After 16 days, evaluating the results of the experiment, we noted the excellent effectiveness of sulfated polysaccharides of

red algae.

Experiments on laboratory mice using *Demodex musculi* suggest the effectiveness of sulfated galactans from red algae in relation to human *D. folliculorum* and *D. brevis*.