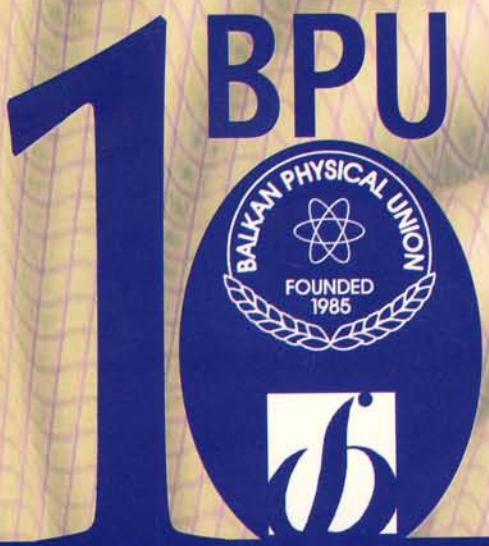
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ABSTRACTS

Permeant Cryoprotectors on Under-
e Skeleton of Human Erythrocytes

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solvents, like formamide (FA), N-methylformamide (MFA),
e (DMFA), dimethyl sulfoxide (DMSO) and ethylene glycol
ects on cellular plasma membranes yet they are used as cry-
ere we applied thermal dielectroscopy to study the impact
meable cryoprotectors on the attachment of spectrin-based
on to the lipid membrane of human erythrocytes. Upon heat-
hrocytes, spectrin denatures at 49.5°C causing sigmoid fre-
ges in the complex impedance, $\Delta Z^* = \Delta Z_{re} + j.\Delta Z_{im}$, of the
y depends on erythrocyte plasma membrane. The $-\Delta Z_{im}$ vs
emicircles expressing a low frequency (0.05- 1.0 MHz) and
0 MHz) dielectric relaxations on spectrin skeleton [1]. At
), relevant to cryoprotection, DMFA, DMSO and EG sub-
relaxation, while FA and MFA strongly inhibited the low
ese effects were eliminated on washing and did not depend
luced. Applied in combination, DMSO and FA neutralized
the dielectric relaxations. These results are discussed in
impact of studied cryoprotectors on the attachment sites of
pid membrane of human erythrocytes.

arvanova, Bioelectrochemistry 110, 59-68 (2016).

Effect of Polyphenolic Compounds Extracted from Inula Oculus-christi on Lipid Oxidation and Packing in Artificial Membranes

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Abstract. Natural metabolism of aerobic cells is associated inevitably with formation of free radicals. Reactive oxygen species and oxidative stress plays crucial role in ageing and age-related diseases. One of the oxidative stress pathways which perturbs normal cell functions is lipid oxidation in the membranes. Antioxidant phytochemicals from medicinal plants are valuable resources that can help in fighting oxidative stress. Inula oculus-christi is a plant known to exert cytotoxic, antioxidant, acetylcholinesterase, antimicrobial and amoebicidal activities as well as DNA damage protection. However, the mechanisms of action of active compounds composed Inula extracts are still not differentiated in order to find highly effective pharmacological applications of this plant.

In this study, we tested the capacity of polyphenolic compounds, phenolic acids and flavonoid glycosides, extracted from the plant Inula oculus-christi to exert their antioxidant properties and to affect lipid packing in artificial membranes. Polarity sensitive fluorescent probes as Laurdan and DPH were used to measure the membrane lipid packing at different depth of the lipid bilayer. The lipid oxidation process

was monitored by the decrease in fluorescence intensity of cis- parinaric acid. The antioxidant potential of phenolic acids and flavonoid glycosides was evaluated and a possible correlation between lipid packing and antioxidant properties of these two polyphenolic compounds is discussed.

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Raft Breaking or Raft Making Are Oxidized Lipids?

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Abstract. Oxidative stress is a major outcome of free radical mediated injur associated with apoptosis, inflammation and a number of pathological processe such as age-related macular degeneration, Alzheimer's and Parkinson's disease prion disease, type 2 diabetes and cancer. Alterations in lipids, and phospholipi in particular, are of obvious importance when attempting to understand the co sequences of oxidative stress on membrane-associated interactions and processe Biological membranes are heterogeneous structures and a variety of lipid/lipid a lipid/protein domains provide the natural cellular functions. Lipid domains knov as lipid rafts are enriched in sphingomyelin (SM) and cholesterol (CHOL). The pla ma membrane takes part in the regulation of oxidative stress in the cell. It has be shown that the disruption of rafts reduces the harmful effect of the reactive oxyg species. One of the most physiologically active oxidized lipids is 1-palmitoyl-2-(oxo- valeroyl)-sn-glycero-3-phosphocholine (POVPC). The presence of short fa acid oxidatively modified at sn-2 position of phosphatidylcholine (PC) leads to alteration of the structural and physico-chemical organisation of membranes. In t context, we studied how POVPC affects the formation of liquid-ordered doma (Lo; rafts-like domains) in POPC (1-palmitoyl-2-oleoyl- sn-glycero-3-phosphoc line) and PDPC (1-palmitoyl-2-docosahexaenoyl-sn-glycero-3-phosphocholine) pid mixtures using DPH-TEMPO quenching fluorescence spectroscopy. Since ference is a fatty acid at sn-2 position of PC molecule, we examined the eff