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EFFECTS OF PCBs IN COMBINATION WITH VARIOUS EXTRACTS OF LAUREL POPPIES *(Laurus nobilis* L.*)* ON LIPID PEROXIDATION OF LIPOSOMES

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ABSTRACT

Laurel *(Laurus nobilis L.)* is one of the most well known medicinal plants used in history. In traditional medicine, ether oil from laurel leaves is used as carminative, excito-aromatic, nervine and in perfumes industry. The fruits were used as spice, and today they are the source of oil and are the component of anti-hemorrhoid paste. The laurel plant contains several classes of secondary plant products. The fruit consists of 30% fat and 1% ether oil, sugars, starch, and basorine, while the leaf contains bitter substances and tannin. Ether oil mostly contains cineol and □-pinen. In this paper the effects of laurel poppies (as ether, chloroform, ethyl-acetate, n-butanol and water extract) and their combination with ascarel and pyralene, on the intensity of lipid peroxidation of liposomes in experiments *in vitro*.

1. MATERIAL AND METHOD

Crude methanol extracts of macerated laurel poppies were obtained in extraction of poppies with 70% methanol. After evaporation to dryness, dry matter was dissolved in water and extracted with ether, chloroform, ethyl-acetate, and n-butanol, thus leaving water solution as well. 10% (v/v)solutions of extracts in 50% ethanol were prepared. The effects of these extracts on lipid peroxidsation of liposomes was investigated according to Fukuzawa[1]. As a model-system the commercial preparation of proliposomes: ″PRO-LIPO S″ (Lucas Meyer) with 30% phosphatidylcholine of soybean pH=5-7, was used. Lipid peroxidation was performed according to Afanas′ev[2]. Pure preparations of pyralene and ascarel were used in different amounts.

2. RESULTS AND DISCUSSION

Extracts of laurel poppies have different affects on lipid peroxidation intensity. Ether and ethylacetate extract decreased the intensity of lipid peroxidation, compared to control, while the other three extracts (in chloroform, butanol and water) increased LPx.

Screening test of laurel poppies resulted in identification of various classes of compounds – phenolic acids and flavonoids, which can act as prooxidants, added in cetrain amounts. Ascarel alone (10 μl) increased the intensity of lipid peroxidation ($p<0.05$), and also in combination with ether, chloroform and ethylacetate extracts, compared to the ascarel control. It is interesting to mention that amounts of 20 μl and 30 μl of

added ascarel reverse the intensity of LPx to the control values. The effect of lowering intensity increase with the amount of added ascarel. This could be explained by the negative synergism of radical mechanisms and interreaction of ascarel with radicals produced during lipid peroxidation of liposomes. The same procedure was repeated with pyralene in amounts of 10, 20 and 30μl (Fig. 2). Similarly, pyralene insreased the lipid peroxidation intensity compared to the control, and combination of pyralene with ether, chloroform and water extracts had no statistically significant effect. Ethylacetate and butanol extracts increased the intensity of lipid peroxidation. Addition of 20 and 30 μl of pyralene resulted in similar decrease in lipid peroxidation intensity.

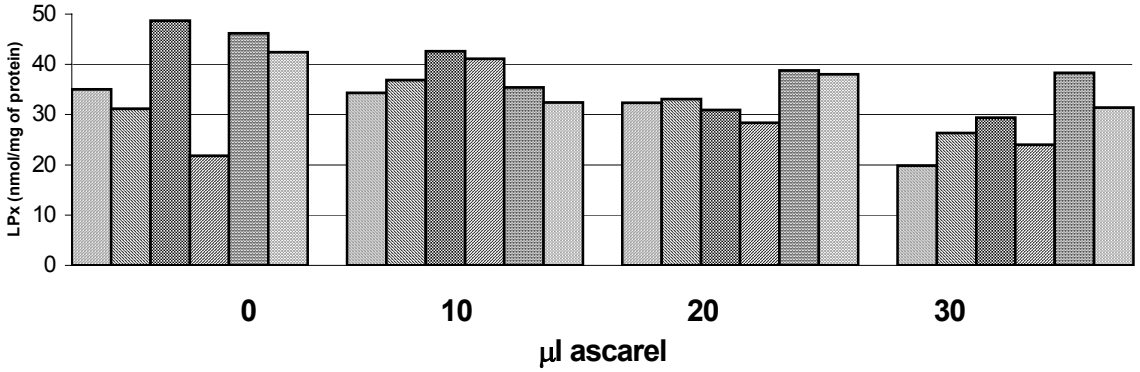

FIGURE 1. Effects of extract of laurel poppies and ascarel solution on the LPx

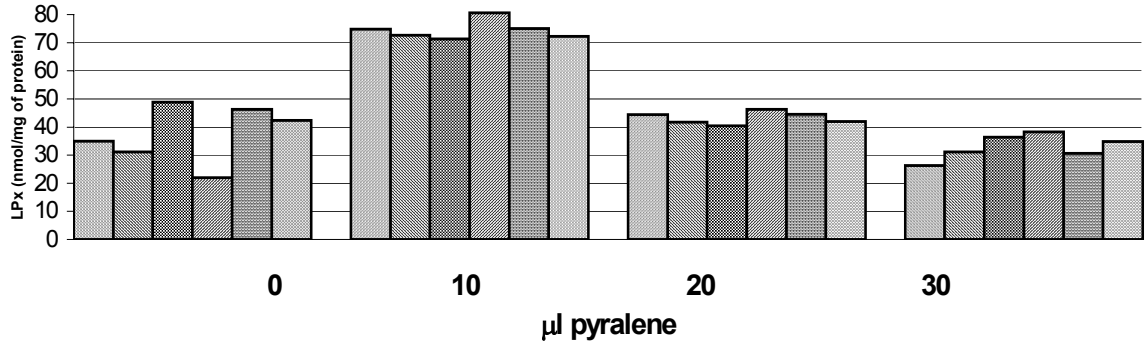

FIGURE 2. Effects of extract of laurel poppies and pyralene solution on the LPx

Due to the structural similarities of pyralene and ascarel, the obtained results confirm that the increase of the concentration of these substances leads to the decrease of lipid peroxidation intensity to control values (or even less), which could be explained by their negative synergism with radicals produced during lipid peroxidation of liposomes.

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