

**THE INFLUENCE OF ALKYLRESORCINOLS ON PHOSPHOLIPASE
A₂ ACTIVITY**

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Alkylresorcinols (AR) share multiple biological activities. These compounds, mostly of plant origin, affect the activity of some enzymes, interact with nucleic acids, modulate the enzymatic and nonenzymatic lipid peroxidation and change the properties of membranes [Kozubek, A. and Tyman, J.H.P. **Chem. Rev.** 99 (1999) 1]. The effect of alkylresorcinols on activity of phospholipase A₂ was tested. The activity of enzyme was measured with spectrofluorimetric method and naturally occurring alkylresorcinols were added to find their effect upon the activity of enzyme. The enzyme used was from *Naja mocambique* venom and is a *sn*-2 fosfatidyl acylhydrolase. PLA₂ (E.C.3.1.1.4) catalyses the hydrolysis of phospholipid yielding a lysophospholipid and a free fatty acid. This enzyme belongs to the secretory PLA₂s that are characterized by an absolute Ca²⁺ requirement and reach the optimal activity under slightly alkaline conditions (pH 7-9) [Six, D.A. and Dennis, E.A. **Biochem. Biophys. Acta** 1488 (2000) 1]. The enzymatic activity is also temperature- dependent and, what is of greatest significance to this research, physico-chemical properties of membranes (membrane curvature and presence of defects on membrane surface) play a crucial role for this activity. Small unilamellar vesicles (SUV) composed of dipalmitoyl phosphatidylcholine (DPPC) were used as a model biomembrane. The addition of a membrane probe *bis*-pyrene DPPC enabled spectrofluorimetric measurements of enzymatic hydrolysis. The PLA₂ activity was tested on SUV containing increasing amounts of ARs against a control (DPPC liposomes). The effect of natural AR homologues with alkyl chain length from 15 to 23 carbons has been analyzed. At relatively high AR concentrations (10 mol%) an inhibition of PLA₂ activity was observed [Kozubek, A. **Z. Naturforsch.** 47c (1992) 608]. No significant relationship between PLA₂ activity and alkyl chain length has been observed.

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