

Influence of Different Oregonins on Pancreatic Lipase Activity

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Introduction. In order to ascertain the function of extracted oregonins on the function of enzymatic activity in the digestive system a model was made. The model incorporates the main digestive system enzymatic components and their environmental requirements. In this part of the research we focused on the function of Lipase under the influence of oregonins extract from two sources – Black and White Alder trees.

Aim, Material and Methods. The aim of the study was to establish the effects of tree extracted oregonins on the function of pancreatic lipase in hope to allow modification of this function. Modification of lipase function will allow control over digestion of dietary fats. All testing was done *in vitro* as close as possible to the functioning environment of the given enzymes. The European standard digestive system model included an array of experimental work testing the effect of the above-mentioned extracts on the activity of lipase. The focus is on the function of lipase that has been tested by enzymatic reaction products and their effect on pH.

Results. The effectors, where extracted by the hydrophilic extracts, were obtained at the Institute of Wood Chemistry from the tree barks using sequential extraction and characterised in terms of component composition and antioxidant capacity (ABTS+, DPPH and ORAC assays). Both extracts showed consistently in a linear fashion throughout the experimental array that White and Black Alder are powerful activators of pancreatic lipase. While both reactions were powerful, Black Alder showed more moderate activation ($12\% \pm 1\%$) to White Alder ($15\% \pm 1\%$) in pH changes and therefore in higher enzymatic products compared to control group. Furthermore, the extracts showed high antioxidants capacity (close or higher than referent antioxidant Trolox) in all three assays.

Conclusions. The high activity of pancreatic lipase under the influence of both oregonins showed consistency throughout the experimental array. The activation of pancreatic lipase may benefit patients with chronic pancreatitis, malabsorption syndrome and any malfunction of pancreas.

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