

Antiprotease and Antimetastatic Activity of Ursolic Acid Isolated from *Salvia officinalis*

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Proteases play a regulatory role in a variety of pathologies including cancer, pancreatitis, thromboembolic disorders, viral infections and many others. One of the possible strategies how to combat with these pathologies seems to be the use of low molecular inhibitors. Natural products were evaluated in the *in vitro* antiprotease assay on serine proteases (trypsin, thrombin and urokinase) and on the cysteine protease cathepsin B. We found interesting results for β -ursolic acid isolated from *Salvia officinalis*, which significantly inhibited all tested proteases *in vitro* in the micromolar range. β -Ursolic acid showed the strongest inhibition activity to urokinase ($IC_{50} = 12 \mu M$) and cathepsin B ($IC_{50} = 10 \mu M$) as proteases included in tumour invasion and metastasis indicated possible anticancer effectivity. Therefore, we tested the ability of β -ursolic acid at doses of 50, 75 and 100 mg/kg given i.p. to inhibit lung colonization of B16 mouse melanoma cells *in vivo*. We found, that β -ursolic acid significantly decreased the number of B16 colonies in the lungs of mice at the dose 50 mg/kg ($p < 0.05$).

Key words: Inhibitors, Proteases, *Salvia officinalis*