Antioxidant Activity of Pine Bark Constituents

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A modified in vitro lipid peroxidation inhibition assay was used to guide the fractionation and the isolation of antioxidative principles of Finnish pine bark extract. This approach yielded 3,4-dihydroxybenzoic acid (protocatechuic acid) and taxifolin-3-O-β-D-glucopyranoside as major antioxidative compounds from the plant material. The structural elucidation of these compounds was undertaken with the help of HPLC-DAD and HPLC-ESI-MS analyses. Their IC50 values, in comparison to trolox (6-hydroxy-2,5,7,8-tetramethylchroman-2-carboxylic acid), were: trolox (1.78 ± 0.56 µM) < protocatechuic acid (5.77 ± 1.63 µM) < taxifolin-3-O-β-D-glucopyranoside (16.30 ± 1.98 µM). The method for the determination of antioxidant activity proved reproducible and quick for routine analyses with 96 well plates.

Key words: Pinus sylvestris L., Protocatechuic Acid, Taxifolin-3-O-β-D-glucopyranoside