G7. Inhibition of Enzymatic Browning in Foods by Plant Seed Extracts

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The inhibition of enzymatic browning (melanosis) in foods by 50% methanol extracts of fifty plant seeds was determined spectrophotometrically using commercially available mushroom tyrosinase and L-DOPA. Among methanol extracts tested, grape (*Vitis vinifera L.*) and cumin (*Curninum cyminum L.*) seed extracts showed potent tyrosinase inhibitory activities with IC50 values of 1.3 and 1.8mg/ml, respectively. Furthermore, several spots inhibiting the initial step of melanin synthesis were tentatively identified by using TLC systems on both silica gel $60F_{254}$ and reversed phase KC_{18} plates. Additionally, the selective inhibitions of their extracts against the isozymes of commercial and partially purified mushroom tyrosiases could be detected using a native polyacrylamide gel electrophoresis. Several inhibitors of mushroom tyrosinase were isolated from the above two seed extracts by column chromatography and HPLC, and identified as phenolic compounds by ^{1}H- and ^{13}C-NMR spectroscopy. The inhibitors are water-soluble, stable, effective at low concentration, and have potential as functional alternatives to sulfites for the inhibition of melanosis.