

Benzophenones as xanthine oxidase inhibitors

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Abstract

Eight synthetic benzophenones were tested for their inhibitory effects on xanthine oxidase (XO). The enzyme, XO catalyses the oxidation of hypoxanthine to xanthine and of xanthine to uric acid, which has a lambda max of 295 nm, forming the basis for a spectrophotometric assay for the activity of XO. The results showed that 2,2',4,4'-tetrahydroxybenzophenone (6), 3,4,5,2',3',4'-hexahydroxybenzophenone (8) and 4,4'-dihydroxybenzophenone (3) displayed the inhibitory effects on XO with an order of activity of IC₅₀ = 47.59, 69.40 and 82.94 microM, respectively. The apparent inhibition constants (K_i) of (8) and (3) were 15.61 and 64.86 microM respectively, and both of them induced mixed type (non-competitive-uncompetitive) inhibitions of the substrate xanthine.