

Inhibition of xanthine oxidase by synthetic cytokinin

analogues.

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Abstract

Thirteen synthetic cytokinin analogues were tested for their inhibitory effects on xanthine oxidase. The enzyme, xanthine oxidase catalyses the oxidation of hypoxanthine to xanthine and of xanthine to uric acid, which has a gamma max of 295 nm, forming the basis for a spectrophotometric assay of the activity of xanthine oxidase. The results showed that 8-azaadenine(1), 4-amino-6-hydroxypyrazolo [3,4-d] pyrimidine(4), 4-amino-6-mercaptopyrazolo [3,4-d] pyrimidine(5) and 4-aminopyrazolo [3,4-d] pyrimidine(6) display inhibitory effects on xanthine oxidase with an order of activity of $IC_{50} = 0.54, 5.91, 8.17$ and 25.46 microM, respectively. Their apparent inhibition constants (K_i) were $0.66, 1.54, 6.61$ and 26.79 microM, and induced mixed(competitive-non-competitive), competitive, mixed (competitive-non-competitive), and competitive types of inhibition respectively, with respect to the substrate xanthine.