INHIBITION OF RODENT BRAIN MONOAMINE OXIDASE AND TYROSINE HYDROXYLASE BY ENDOGENOUS COMPOUNDS – 1,2,3,4-TETRAHYDROISOQUINOLINE ALKALOIDS

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Four different noncatecholic and one catecholic tetrahydroisoquinolines (TIQs), cyclic condensation derivatives of β-phenylethylamine and dopamine with aldehydes or keto acids, were examined for the inhibition of rat and mouse brain monoamine oxidase (MAO) and rat striatum tyrosine hydroxylase (TH) activity. Simple noncatecholic TIQs were found to act as moderate (TIQ, N-methyl-TIQ, 1-methyl-TIQ) or weak (1-benzyl-TIQ), MAO B and MAO A inhibitors. 1-Methyl-TIQ inhibited more potently MAO-A than MAO-B; the similar but more modest effect was exerted by salsolinol. Only salsolinol markedly inhibited TH activity, being competitive with the enzyme bioppterin cofactor. The inhibition of MAO and TH by TIQs is discussed in relation to their ability to regulate monoamine metabolism.

Key words: monoamine oxidase, tyrosine hydroxylase, inhibition of enzyme activity, tetrahydroisoquinoline derivatives

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