Biochemical and behavioral effects of boldine and glaucine on dopamine systems

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The aporphine alkaloids boldine and glaucine have been reported to show 'neuroleptic-like' actions in mice, suggesting that they may act as dopamine antagonists. We have found that in vitro boldine displaces specific striatal [3H]-SCH 23390 binding with IC50 = 0.4 ?M and [3H]-raclopride binding with IC50 = 0.5 ?M, while the affinities of glaucine at the same sites are an order of magnitude lower. In vivo, however, 40 mg/kg boldine (IP) did not modify specific striatal [3H]-raclopride binding and only decreased [3H]-SCH 23390 binding by 25%. On the other hand, 40 mg/kg glaucine (IP) displaced both radioligands by about 50%. Behaviors (climbing, sniffing, grooming) elicited in mice by apomorphine (0.75 mg/kg SC) were not modified by boldine at doses up to 40 mg/kg (IP) but were almost completely abolished by 40 mg/kg glaucine (IP). In the apomorphine-induced (0.1 mg/kg SC) rat yawning and penile erection model, boldine and glaucine appeared to be similarly effective, inhibiting both beha