Ibogaine and Noribogaine: Comparing Parent Compound to Metabolite

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ABSTRACT

Ibogaine is one of the psychoactive alkaloids found in the West African shrub Tabernanthe iboga. Since the 1980s, a series of US patents have claimed efficacy for ibogaine in the treatment of drug addiction. Since then, more than 60 scientific publications on ibogaine and drug addiction have been published. Ibogaine has an acute and a prolonged effect on neurochemistry and behavior. Its metabolite, noribogaine (12-hydroxyiboganine), is produced through metabolic demethylation soon after oral ibogaine administration. Although, they share similar chemical structures, ibogaine and noribogaine display different binding profiles. In rodents both, ibogaine and noribogaine, decreased morphine and cocaine intake and modulated dopaminergic transmission. In rats trained to discriminate ibogaine from saline, complete generalization to noribogaine was obtained. Attempts to correlate brain levels of both, the parent compound and the metabolite indicate that noribogaine is primarily responsible for ibogaine discriminative stimulus. Ibogaine-induced neurotoxicity tends to occur at doses much higher than the proposed dose for humans, but caution is important when extrapolating data from ibogaine’s effects observed in rodents. Although a definitive clinical validation of purported ibogaine effects is still unavailable, ibogaine has opened new perspectives in the investigation of pharmacotherapies for drug addiction.