

Effect of solanaceous alkaloids on the 5-hydroxytryptamine content of rat brain

SIR,—The central stimulatory actions of atropine in high doses causing excitement, tremors and hallucinations are well known. These actions in relation to brain acetylcholine (Giarman & Pepeu, 1964) and cholinesterase (Lullmann, Forster & Westerman, 1952) have been investigated. Some similarities in the actions of atropine and lysergic acid diethylamide (LSD) like facial flush, hyperthermia, rise in blood pressure and mydriasis are known (Pfeiffer, 1959). Further, LSD has been shown to cause an increase in the 5-HT content of rat brain (Freedman, 1961; Freedman & Giarman, 1962). We now report the effects of atropine, hyoscine and the total alkaloids of *Datura alba* on the 5-HT content of rat brain.

Adult albino rats, 100–150 g, were injected intraperitoneally with the drugs (25 mg/kg) in 0.5 ml of 0.9% saline. Control animals had normal saline only. The rats were killed $\frac{1}{2}$ hr after the administration of drugs and the brain (excluding the olfactory lobe, cerebellum and pituitary glands) removed quickly. The 5-HT was extracted by the method of Amin, Crawford & Gaddum (1954), and assayed on the oestrous uterus of rat (Parratt & West, 1957). The alkaloids of *Datura alba* were extracted by the B.P. (1963) method.

TABLE 1. EFFECT OF ATROPINE, HYOSCINE AND TOTAL ALKALOIDS OF *Datura alba* ON THE 5-HT CONTENT OF RAT BRAIN

Drugs 25 mg/kg	Time interval in hr	No. of rats	Brain 5-HT content in $\mu\text{g/g} \pm \text{s.e.}$
Control	$\frac{1}{2}$	10	0.40 \pm 0.04
Atropine	$\frac{1}{2}$	5	0.59 \pm 0.03
Hyoscine	$\frac{1}{2}$	5	0.71 \pm 0.05
Total alkaloid of <i>Datura alba</i> ..	$\frac{1}{2}$	6	0.76 \pm 0.007

Atropine, hyoscine and the total alkaloid of *Datura alba* cause an increase in the 5-HT content of rat brain (Table 1). This rise in the 5-HT content also resembles the action of LSD referred earlier (Freedman, 1961) and may be related to the central effects like tremor, excitement and ataxia (Udenfriend, Weissbach & Bogdanski, 1957), commonly seen in atropine and datura poisoning.

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June 22, 1966

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