Review Papers

THE MOTIVATION FOR BEER CONSUMPTION IN LABORATORY ANIMALS

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ABSTRACT – A series of experiments examined various aspects of beer consumption in rats. Rats were given access to either beer or ethanol solution under free choice conditions. Rats consumed greater amounts of beer 2.7% or beer 5.0% than equivalent dilute ethanol solution in water. Consumption of 2.7% beer was greater than 5.0% beer. Rats given daily 30-min drink session consumed more 2.7% beer than 3.85% and more 3.85% than 5.0% beer. The experiments employed a „lick-based progressive ratio paradigm" in which an ever increasing number of licks had to emitted at a tube for each successive fixed unit of beverage delivered. Break point, the lick requirement at which responding ceased, was used as an index of motivation. The cannabinoid CB1 receptor agonist CP 55,940 caused a dose-dependent increase in break point for beer. The facilitatory effects of CP 55,940 on responding for beer were reversed by both the cannabinoid CB_1 receptor antagonist SR 141716 and the opioid receptor antagonist naloxone. Cannabinoids modulate the motivation for beer via both cannabinoid drug receptors and opioid receptors.

5-HT2$_{a/2c}$ receptor antagonist ritanserine, the opioid receptor antagonist naloxone and CB_1 receptor antagonist SR 141716, all three drugs caused reduction of break-point in both the beer and near-beer groups of animals. However, the effects of SR 141716 and naloxone, but not ritanserine, on break-point were significantly more pronounced on rats drinking beer compared to those drinking near-beer.

SR 141716 and naloxone differentially affect the motivation to consume alcoholic beverages and may thus have potential as drugs for the treatment of alcohol craving.

Key words: alcohol, beer, motivation, rat, cannabinoid, naloxone, SR 141716, CP 55 940, ritanserine.