

## How Addictive Are They: Effects of E-Cigarette Vapor on Intracranial Self-Stimulation Compared to Nicotine Alone

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**Abstract :** Electronic cigarettes (e-cigarettes) use vapor to deliver nicotine, have recently become popular, especially amongst adolescents. Because of this, the FDA has decided to regulate e-cigarettes, and therefore would like to determine the abuse liability of the products compared to traditional nicotine products. This will allow them to determine the impact of regulating them on public health and shape the decisions they make when creating new laws. This study assessed the abuse liability of Aroma E-juice Dark Honey Tobacco compared to nicotine using an animal model. This e-liquid contains minor alkaloids that may increase abuse liability compared to nicotine alone. The abuse liability of nicotine alone and e-juice liquid were compared in rats using intracranial self-stimulation (ICSS) thresholds. E-liquid had less aversive effects at high nicotine doses in the ICSS model, suggesting that the minor alkaloids in the e-liquid allow users to use higher doses without experiencing the negative effects felt when using high doses of nicotine alone. This finding could mean that e-cigarettes have a higher abuse liability than nicotine alone, but more research is needed before this can be concluded. These findings are useful in observing the abuse liability of e-cigarettes and will help inform the FDA while regulating these products.

**Keywords :** electronic cigarettes, intra-cranial self stimulation, abuse liability, anhedonia

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