

# Concentrations of nicotine, nitrosamines, and humectants in legal and illegal cigarettes in Mexico

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## Abstract

**Background:** Article 10 of the World Health Organization Framework Convention on Tobacco Control states the need for industry disclosure of tobacco contents and emissions. Currently, the profiles of key tobacco compounds in legal and illegal cigarettes are largely unknown. We aimed to analyze and compare concentrations of nicotine, nitrosamines, and humectants in legal and illegal cigarettes collected from a representative sample of smokers.

**Methods:** Participants of the International Tobacco Control cohort provided a cigarette pack of the brand they smoked during the 2014 wave. Brands were classified as legal or illegal according to the Mexican legislation. Nicotine, nitrosamines, glycerol, propylene glycol, and pH were quantified in seven randomly selected packs of each brand. All analyses were done blinded to legality status. Average concentrations per brand and global averages for legal and illegal brands were calculated. Comparisons between legal and illegal brands were conducted using t tests.

**Results:** Participants provided 76 different brands, from which 6.8% were illegal. Legal brands had higher nicotine ( $15.05 \pm 1.89$  mg/g vs  $12.09 \pm 2.69$  mg/g;  $p < 0001$ ), glycerol ( $12.98 \pm 8.03$  vs  $2.93 \pm 1.96$  mg/g;  $p < 0.001$ ), and N-nitrosanatabine (NAT) ( $1087.5 \pm 127.0$  vs  $738.5 \pm 338$  ng/g;  $p = 0.006$ ) concentrations compared to illegal brands. For all other compounds, legal and illegal brands had similar concentrations.

**Conclusion:** Compared to illegal cigarettes, legal brands seem to have higher concentrations of nicotine, NAT, and glycerol. Efforts must be made to implement and enforce Article 10 of the Framework Convention on Tobacco Control to provide transparent information to consumers, regulators, and policy-makers; and to limit cigarette engineering from the tobacco industry.

## Recommended Citation

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