

Investigation of Nitrosamines in Tobaccos

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ABSTRACT

This study investigated 4 tobacco specific nitrosamines (TSNAs) of cigarettes, including *N*'-nitrosonornicotine (NNN), 4-(methylnitrosamino)-1-(3-pyridyl)-1-butanone (NNK), *N*'-nitrosoanatabine (NAT) and *N*'-nitrosoanabasine (NAB) by liquid chromatograph/tandem mass spectrometer (LC/MS/MS).

Homogenized tobacco was extracted with ethyl acetate by ultrasonic. The extract was evaporated to dryness and re-dissolved in methanol prior to analysis on LC/MS/MS. Waters Atlantis T3 column was used for separation with gradient elution between 10 mM ammonium formate and water solution. The mass spectrometry analysis of TSNAs was taken in the multiple reaction monitoring (MRM) modes. The recovery of TSNAs was between 88.2 and 113.5%. Fifty-one commercial cigarettes were investigated by this method. The results showed that the contents of TSNAs in 11 domestic cigarettes was 0.12-0.69 mg/kg, 9 cigarettes imported from China 0.03-1.07 mg/kg and 31 imported cigarettes 0.08-0.94 mg/kg. The contents of TSNAs in tobacco did not exceed the proposed limits 10 mg/kg of European Union.

Key words: nitrosamines, LC/MS/MS, cigarettes

