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PRELIMINARY RESULTS OF PROJECT P 0268/2189

INFLUENCE OF SELECTED AMINO ACIDS

ON THE MUTAGENICITY

OF CIGARETTE SMOKE CONDENSATE

(PT)

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CONCEPT

Heterocyclic aromatic amines, e.g., IQ, Glu-P-1, AαC, PhIP, and Trp-P-2 which are present in cigarette smoke condensate are known to be mutagenic. It is assumed that - to a significant degree - these compounds are pyrolysis products of specific amino acids, which are present in different concentrations in the filler in free and bound forms. If the contribution of those pyrolysis products to the mutagenicity of condensate is significant, the latter could be influenced by modifying the amino acid compostion of the filler.

In order to investigate the contribution of different amino acids to the mutagenicity of cigarette smoke condensate, selected amino acids were administered to the filler of a test cigarette. From such treated cigarettes mainstream smoke TPM was prepared and assayed for its mutagenicity.

The test cigarette to be spiked was an Oriental single blend cigarette which condensate has shown a low mutagenicity. The selected amino acids glutamic acid, tryptophan, phenylalanine, proline, serine, alanine, and glycine in free were used in 7.5 and 75 µmol (approx. 1 and 10 mg) for each amino acid per cigarette. Untreated cigarettes served as controls.

The mutagenicity determination was carried out using the Salmonella reverse mutation assay in the plate incorporation version with the tester strain TA98 in the presence of S9.

TEST SUBSTANCE

cigarette: 5 OS-B-OR (single Oriental blend)

MS-TPM collected on Cambridge filter

3 cigarette/filter

3 filter/cig. type

TEST PARAMETER

strain TA98

with S9 activation

plate incorporation test

doses 40, 80, 120, 160 µg dry cond./plate

3 replicate doses