Study of the Semi-volatile Components in Cigarette Mainstream Smoke

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ABSTRACT : The semi-volatile fraction of cigarette mainstream smoke contains the most important aroma and taste that enhance smoke flavor. The components in mainstream smoke were analyzed for commercially available cigarettes. To compare the semi-volatile components delivered from mainstream smoke of domestic cigarette with imported cigarette, we analyzed three types of filter cigarettes such as cellulose acetate mono filter, carbon dual filter and slim filter cigarette.

Mainstream smoke was collected with a combination of Cambridge filter pad and liquid trap containing a small namount of acetone cooled by dry ice-methanol.

We have identified 43 components from mainstream smoke by GC, and found that benzene, toluene, 4-hydroxy-4-methyl-2-pentanone, 5-methyl-2-furaldehyde, acetic acid, nicotine, triacetin were the main peaks in mainstream smoke. Also we have compared the relative amounts of semi-volatile compounds delivered from the domestic and imported cigarettes with three different filters. From the results of this study, the relative amounts of limonene, acetic acid, 5-methyl-2-furaldehyde, triacetin delivered from the imported cigarettes were generally higher than that of the domestic one's.

Some of these compounds enhance smoke flavor and acetic acid indirectly balance to smoke.