5. 固相抽出—LC-MS/MS 法による食品中の甘味料 12 種および保存料 9 種の一斉分析

保健科学課　鶴田　小百合・坂本　智徳・赤木浩一

日本食品衛生学雑誌

A rapid and simple method for the simultaneous determination of twelve sweeteners and nine preservatives in various foods by liquid chromatography-tandem mass spectrometry （LC-MS/MS） was developed. The sweeteners and preservatives were extracted from solid samples with 80％ and 50％ methanol and from liquid samples with 80％ methanol, followed by Oasis WAX cartridge cleanup. The LC separation was performed on a XSelect CSH Phenyl-Hexyl column （5 m, 2.1 mm ×150 mm） with a mobile phase of 10 mmol/L acetate buffer （pH 4.0）–acetonitrile and MS detection
with negative ion electrospray ionization. The quantification limits of acesulfame K（ AK）, alitame（AL）, aspartame （ASP）, cyclamic acid （CYC）, neotame （NEO）, saccharin Na （SAC）, p-hydroxybenzoic acid methyl （PHBA-Me）, p-hydroxybenzoic acid ethyl （PHBA-Et）, p-hydroxybenzoic acid isopropyl （PHBA-iPr）, p-hydroxybenzoic acid propyl （PHBA-Pr）, p-hydroxybenzoic acid isobutyl（PHBA-iBu） and p-hydroxybenzoic acid butyl （PHBA-Bu） were 0.001 g/kg, those of dulcin （DU）, glycyrrhizic acid （GLY）, neohesperidin dihydrochalcone （NHDC）, rebaudioside A （REB）, stevioside （STV）, sucralose （SUC） and benzoic acid （BA） were 0.005 g/kg, and those of sorbic acid（SOA） and dehydroacetic acid （DHA） were 0.02 g/kg. The mean recoveries from ten kinds of foods fortified at the levels of 0.02 and 0.2 g/kg were 70.9–119.0％, and their relative standard deviations were 0.1–11.7％.