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## Optimization of gas chromatography and high-performance liquid chromatography to set the official analytical method for stearoyl lactylates in foods

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**S** tearoyl lactylates (SLs, E481/E482) are emulsifiers generally used in baking to improve the texture, crumb structure, gas retention and to strengthen dough. Many countries have controlled the levels of SLs in food according to their maximum permitted levels as food additive in foods. This study was performed to optimize the analytical method of SLs using Gas Chromatography (GC) and High-Performance Liquid Chromatography (HPLC) to set the guidelines of SLs in Korea. Seven previous analytical methods using GC and HPLC were examined and modified to establish new methods. A new GC method using DB-1 column with He as carrier gas and one modified HPLC method using C18 column with water and methanol as a solvent were selected and compared. The selected GC method exhibited and showed r2 in standard curve as 0.999 and LOD and LOQ of this method were 16.54 and 50.12 µg/kg respectively. The new HPLC method showed regression coefficient (r2) of 0.999 in standard curve and its limit of detection (LOD) and limit of quantification (LOQ) were 0.26 and 0.78 µg/kg respectively. The GC and HPLC methods showed precision data ranged from 0.3 to 2.0 and from 0 to 0.2% and accuracy results ranged from 98.7 to 108.5 and 92.7 to 102.5% respectively. These analytical methods showed improved results in linearity, LOD (Limit of detection), LOQ (Limit of Quantification), precision and accuracy compared with other previous reported methods. Newly optimized both GC and HPLC methods can be considered as suitable methods to determine the level of SLs in foods.

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