

Penetapan kadar sakarin, asam benzoat, asam sorbat, kofeina, dan aspartam di dalam beberapa minuman ringan bersoda secara kromatografi cair kinerja tinggi

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Deskripsi Lengkap: <https://lib.ui.ac.id/detail?id=20335307&lokasi=lokal>

Abstrak

As the food and beverages industry grows in Indonesia, there also has been an increase in the soft-drinks production in the society. There are elements often added into the drinks; such as caffeine, artificial sweetener and preservatives, which the content should be monitored. Because, if they are over-used, they will be hazardous to health. The purpose of this research is to obtain the optimum analysis condition for determining the content of saccharin, aspartame, benzoic acid, sorbic acid and caffeine, which are in the soft-drinks, using the reversed phase High-Performance-Liquid-Chromatography (HPLC). In this study, the condition used are Latek 18 column (15 cm x 4.0 mm), mobile phase as a mixture of acetonitrile and acetat buffer pH 5(5:95), flow rate 1,0 ml/minutes and detected by a 254 nm length-wave. The detection limit discovered by this method are for saccharin, benzoic acid, sorbic acid, caffeine and aspartame, respectively, are 0,2 ppm; 0,2 ppm; 0,007 ppm; 0,142 ppm; and 6,5 ppm. Whereas, the quantitative limit for saccharin, benzoic acid, sorbic acid, caffeine and aspartame, respectively, are 0,689 ppm; 0,852 ppm; 0,027 ppm; 0,452 ppm; 25,2 ppm. The calibration curve ranged between 1-60 ppm for saccharin and benzoid acid, 1-40 ppm for caffeine, 0.05-2 ppm for sorbic acid, and 30-100 ppm for aspartame. The investigation has been done for five (5) brands od soft-drinks. The analysis results are sample A contains caffeine 96,66 ppm, sample B contains saccharin 112,13 ppm, benzoic acid 206,81 ppm, and caffeine 130,63 ppm. Sample C contains benzoic acid 10,83 ppm and caffeine 97,66 ppm. Sample D contains benzoic acid 163,78 ppm, caffeine 101,52 ppm, and aspartame 231,20 ppm. The amounts of saccharin, benzoic acid, caffeine, and aspartame which has been found in the sample, do not exceed the tolerance limit of usage, whereas the amount of benzoic acid which has been found in sample B exceed the tolerance limit of usage.