



IDENTIFICATION PARAMETERS FOR COMPARISON OF NATURALLY AND COMMERCIALY LIME JUICE

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ABSTRACT

Public consumption of lemon and lime juice and its best-selling market induces jobber to carry out numerous adulterations in order to reduce production costs and thereby endangering people's health and create numerous problems for the relevant regulatory authorities. It seems the previous proposed parameters are not suitable and reliable for detection of lime juice adulteration. In this regards, several important parameters as cations, anions, citric acid and isocitric acid were studied for distinguish between naturally and commercially Persian lime juices. For this purposed, various cations (Li^+ , Na^+ , NH_4^+ , K^+ , Ca^{2+} and Mg^{2+}) and anion (F^- , Cl^- , NO_2^- , Br^- , NO_3^- , PO_4^{3-} and SO_3^{2-}) were investigated in naturally and commercially lime juice using Ion chromatography system equipped with Suppressed conductivity detector. Citric acid and isocitric acid were determined and quantified using HPLC–UV detection. After optimization the method, linear calibration curves were plotted. The average recoveries of the analytes were higher than 72%. Our results showed significant difference in cations (Li^+ , Na^+ and K^+) and anion (Cl^-) between natural and commercial lime juice samples. The citric acid: isocitric acid ratio was found with a mean of 280 ± 86 in natural products, while this ratio was found with a mean of 503 ± 149 in commercial products using HPLC method. This result shows that this method would be useful for determining of routine adulteration in food control laboratories. This is the first study for showing of real difference between natural and commercial difference in lime juice consumed by Iranian population.