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MODERN PLANAR CHROMATOGRAPHY IN FOOD ANALYSIS

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The European Commission requires that fruit products distributed on the market are high quality and authentic. Lack of food control during processing and production can lead to low quality products. Therefore, it is highly demanding to establish a suitable method for quality control of food products based on chemical/biological profile as a verification of samples authenticity.

Due to simplicity, low costs, and opportunity for parallel analysis of several samples under same conditions, high performance thin-layer chromatography (HPTLC) has becoming more popular in food analysis. Furthermore, HPTLC combined with *in situ* enzymatic, biological and chemical assays provide fast screening of complex natural samples with regard to effects or bioactive components. After bioautography, bioactive bands could be identified using combination of HPTLC and structure elucidation techniques such as mass spectrometry (MS).

HPTLC chromatogram is rich source of data. Combination of high sophisticated multivariate techniques with planar chromatography allows extraction of full information from HPTLC chromatogram concerning to similarity/dissimilarity between samples, or identification of characteristic markers responsible for classification.

Combination of planar chromatography-bioautography-mass spectrometry and sophisticated multivariate analysis provides high-throughput quality assessment of food products regarding to potential health-promoting activities.

Keywords: Food adulteration, HPTLC fingerprint, green analytical method, multivariate analysis

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