Role of NH_3 preconditioning of SiO_2 layers in the separation of flavonoids from citrus fruits by HPTLC.

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Flavonoids are widely distributed in the plant kingdom. Every taxonomic group has its characteristic flavonoids pattern. In the Citrus genus, flavonoids are mainly present as glycosides. They exert multiple biological effects including antioxidative activity.

HPTLC is a method of choice for the analysis of plant extracts because it presents many advantages. For example, we can depose the whole extract without any pre-treatment, reducing the experimental time and the possible loss of compounds during sample treatment. Moreover we can analyse several samples on the same plate allowing then the rapid screening of different plants.

The aim of this work is to analyse and quantify by HPTLC the three flavonoids rutin, hesperidin and narangin in the peel, pip and pulp of oranges and grapefruits. The stationary phase was SiO_2 and eluent was ethyl acetate/methyl ethyl ketone/acetic acid/formic acid/water: 58.8/17.6/3.5/8.2/11.8. We focused our study on the important role of preconditioning the layer with ammoniac vapours. The best separation of the three flavonoids was obtained with 15 minutes NH_3 conditioning of the layer.