

Histamine in Fish and Theanine in Tea – Two Cases for Employing Planar Chromatography.

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Even in the age of GC/MS and LC/MS, thin layer chromatography still has its justification. This is particularly called for when individual substances found in higher concentrations are to be determined and when it is possible to separate the interfering matrix components either by clean up or derivatization methods.

Case 1: The improper storage of fish and fish products may increase the formation of biogenic amines, particularly histamine, whose amount was restricted by legislation due to its physiological activity. Analysis of histamine and certain biogenic amines introduced by Karmas [1] for estimating the “biogenic amine index” can be carried out by HPLC [2] after extraction, clean-up and derivatization. For the determination of histamine and other amines HPLC methods are generally proposed.

However, these methods are time-consuming; therefore a quick screening-method was developed. The TLC method is well-suited to examining the allowed histamine limit. Up to twelve samples can be analysed per day [3].

Case 2: The members of the DIN study group “Tea“ were asked to develop a quick and inexpensive method for analysing theanine content in different teas and tea extracts, suitable also to being adopted by the ISO. Recently, our work group was successful in developing such a method.

Theanine, the ethyl amide of the glutamic acid, is said to influence the aroma of tea beverages positively and is also responsible for their slightly refreshing effects. Therefore, theanine might be a quality indicator for tea [4,5].

Nevertheless, recorded data in the literature data are rather contradictory, and there are no data for new products like white tea. Unknown is also the influence of the individual production steps for tea extracts onto the theanine content.

For determining theanine in tea, several techniques are described. HPLC-methods after derivatization were applied, but also the amino acid analyzer. Every one of these methods is very time-consuming as all samples must be analyzed consecutively. Our TLC method, which allows a quick and inexpensive determination of theanine in different tea and tea extracts as well as the first results will be presented here.

Literature:

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