

Micro Extraction and HPLC Quantification of Aucubin, Catalpol and Acteoside in Plantain

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Abstract

Aucubin, Catapol and Acteoside (Verbascoside) are secondary metabolites found in plantain and other plants, which have antimicrobial activity and anti-inflammatory function for human and animals. This research had developed a fast and economical micro-extraction method, also developed a reliable HPLC analysis for separation and quantification of Aucubin, Catapol and Acteoside in plantain extract. The newly developed micro-extraction was using 2ml Eppendorf tube, saved a large of amount of organic solvent and time in extraction process, and also easier to handle.

The method 1 of HPLC analysis for Aucubin and Catapol were detected at 204nm, and mobile phase contained 98% A and 2% B in isocratic. Sodium dihydrogen phosphate buffer as A, 100% Acetonitrile as B, the research found using buffer in mobile phase A enhanced the retention time stability compared with water as mobile phase A.

The method 2 of HPLC analysis for Acteoside was completed by a 10 min isocratic run, mobile phase contained 80% C (5% acetic acid in water) and 20% B (same as above), detection at 330nm. Both separations performed on Agilent 1100 series consisted of quaternary pump and DAD detector, Prodigy column 250mmx4.6mm ODS 5um column (Phenomenex, USA) was used for separation. To complete quantification of three compounds effectively, a sequence set up in Chemstation software switched method 1 to 2 seamlessly, and allowed 30min column reconditioning between two runs by method 2 mobile phase.



Biography:

Jenny Zhao, as a chromatography specialist, works in Lincoln University, New Zealand, her expertise has helped and supported wide range of research projects, which cover



agriculture, food, wine and life science research area. In past years, she has established and developed many GC, HPLC, LC-MS methodologies, and published many research papers as a co-author with other scientists.

Speaker Publications:

1. Yoshifumi T, Sansei N (2002) Changes in the Concentrations of Bioactive Compounds in Plantain Leaves. Journal of Agriculture and Food Chemistry 50: 2514-2518.
2. Soledad N, Peter D. K, Sarah J. P, Penny J, B (2016) Bioactive compounds, aucubin and acteoside, in plantain and their effect on in vitro rumen fermentation. Animal Feed Science and Technology 222: 158-167.
3. Teodora J, Nebojsa M (2010) Quantitative Determination of Aucubin in Seven Plantago Species Using HPLC, HPTLC, and LC-ESI-MS methods. Analytical Letters 43:2487-2495
4. Hasan A. K, Ibrahim S.A(2019) Determination, isolation, and identification of Aucubin and Verbascoside in the leaves of Iraqi Plantago Lancoleta L. Using Different Detecting Methods
5. Miranda S, Maja C (2015) Analysis of Aucubin and Catalpol content in different plant parts of four Globularia species. Journal of Applied Botany and Food Quality 88: 209 – 21

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