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Authors: Ana Romera-Torres, Roberto Romero-González, José Luis Martínez Vidal, Antonia Garrido Frenich

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Analytical methods, occurrence and trends of tropane alkaloids and calystegines: an update

Ana Romera-Torres, Roberto Romero-González, José Luis Martínez Vidal, Antonia Garrido Frenich*

Department of Chemistry and Physics, Research Centre for Agricultural and Food Biotechnology (BITAL), University of Almería, Agrifood Campus of International Excellence, ceiA3, Carretera de Sacramento s/n, E-04120 Almería, Spain.

* Correspondence to: Antonia Garrido Frenich, Tel. +34 950015985; fax: +34 950015008. E-mail: agarrido@ual.es

HIGHLIGHTS

- Update revision of analytical methods focused on tropane alkaloids and calystegines
- Extraction and LC-MS and GC-MS stages have been reviewed
- Natural or accidental presence in vegetable species and food have been evaluated
- Future trends regarding their extraction and analysis are presented

Abstract

In the last years, the interest in secondary metabolites from plants has been growing, and even more if they have or would have medical applications, as it happens with tropane alkaloids and calystegines. Therefore, the number of analytical methods for the analysis of these compounds has been increasing. In this review, the extraction methods as well as the chromatographic separation and detection techniques based on mass spectrometry to determine tropane alkaloids and calystegines in plant raw material and food have been described. Finally, a summary of the natural occurrence of tropane alkaloids and calystegines in the studied matrices, as well as their accidental presence in food, is presented, highlighting current and future determination trends.