Silver Complexation and Tandem Mass Spectrometry for Differentiation of Isomeric Flavonoid Diglycoside

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Overview

Objectives
- To develop a silver-based method for measuring flavonoids based on matrix complexation
- To facilitate isomeric flavonoids

Methods
- Silver(I) forms abundant 1:1 complexes with flavonoids.
- Separation of flavonoids is essential for gas chromatography by HPLC.
- Determination of flavonoids and MESS characteristics of related flavonoids

Results
- Silver forms abundant 1:1 complexes with flavonoids.
- Silver complexation is more commonly observed compared to other metal complexation strategies.
- The five major fragmentation pathways or its major fragment ions are substantially more diagnostic for the silver complexes of flavonoids. In addition to distinguishing isomeric flavonoids, correlations are identified between the CAD dissociation patterns and the structural features of the flavonoids. The 3’-O-glycosylation position also has a significant impact on the CAD dissociation patterns. The 3’-O-glycosylation position also has a significant impact on the CAD dissociation patterns.

Conclusions
- Silver(I) and flavonoids form abundant complexes of the type: (Ag + flavonoid).
- The CAD patterns of the silver complexes can be used to identify the class of flavonoid and the position of the glycosylation.
- The silver complexation methodology can be applied to complex flavonoid mixtures after coupled separation and postcolumn silver complexation.

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References
- Analytical