

GC-MS-based metabolite profiling of *Cosmos caudatus* leaves possessing alpha-glucosidase inhibitory activity

ABSTRACT

Cosmos caudatus, which is known as *Ulam Raja*, is an herbal plant used in Malaysia to enhance vitality. This study focused on the evaluation of the α -glucosidase inhibitory activity of different ethanolic extracts of *C. caudatus*. Six series of samples extracted with water, 20%, 40%, 60%, 80%, and 100% ethanol (EtOH) were employed. Gas chromatography-mass spectrometry (GC-MS) and orthogonal partial least-squares (OPLS) analysis was used to correlate bioactivity of different extracts to different metabolite profiles of *C. caudatus*. The obtained OPLS scores indicated a distinct and remarkable separation into 6 clusters, which were indicative of the 6 different ethanol concentrations. GC-MS can be integrated with multivariate data analysis to identify compounds that inhibit α -glucosidase activity. In addition, catechin, γ -linolenic acid, β -D-glucopyranoside, and vitamin E compounds were identified and indicate the potential α -glucosidase inhibitory activity of this herb.

Keyword: *Cosmos caudatus*; GC-MS; Diabetes; Metabolomics; α -glucosidase inhibitory activity