Identification of Flavonoids from Aerial Part of Eleusine indica Aqueous Extract through Tandem Mass Spectrometry Molecular Networking and Diagnostic Evidence Data Analyses

ABSTRACT

Eleusine indica (Poaceae) is a perennial grass locally known as 'rumput sambau'. The aerial part of the plant has been used traditionally by the local people of Kadazandusun to treat ailments related to inflammation and immune-associated disorders. Previous biological activities particularly antioxidant, cytotoxic, and anti-inflammatory may suggest that the chemical components of E. indica, principally the flavonoids could modulate the immune response. However, study on the flavonoid's constituent in the aerial part of the plant is limited. Thus, this study aimed to identify the flavonoids component in the aqueous extract of E. indica aerial part through liquid chromatography tandem mass spectrometry-based molecular networking technique applying MZmine, Global Natural Product Social Molecular Networking (GNPS), and SIRIUS platforms. In addition, diagnostic evidence analysis was performed based on fragmentation role, local experience and literature data to increase the confidence level in the structural identification of the flavonoids. Five flavonoids belonging to the C-glycosyl group were putatively identified as vitexin (1), schaftoside (2), isoschaftoside (3), vicenin 2 (4), and vicenin X (5). Some of these flavonoids have been reported to exhibit immune-related biological activities which could provide scientific support to justify the plant's traditional use. This is the first report on the existence of vicenin 2 and vicenin X in the plant.