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質量分析法によるセネガとニンジン中のグリコシドエステルを有するサポニン類の分析

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Mass spectrometric studies were performed on the saponins isolated from ginseng (ginsenoside Rg1, Rb1, Ro) and senega (senegin II, senegin III, senegin IV, desacylsenegin III and desacylsenegin IV). Matrix assisted laser desorption ionization time-of-flight mass spectrometry (MALDI-TOF MS) and liquid chromatography-electrospray ionization coupled with ion trap TOF MS (LC-ESI-IT-TOF MS) were applied to characterize seven saponins in pure state and a mixture of saponins in crude extract. In MALDI-TOF MS, $[M+Na]^+$, $[M+K]^+$ and some characteristic fragment ions were observed in positive mode with DHB (10mg/mL) as matrix. Relative intensities of the molecular ions to fragment ions increased in the higher sample concentrations. In LC-ESI-IT-TOF MS, $[M+Na]^+$ and $[M-H]^-$ were dominantly observed in positive and negative mode, respectively. $[M+HCOO]^-$, $[M+HCOONa+HCOO]^-$ and $[M+HCOONa-H]^-$ were observed in MS(-). MS^n(-) of senega saponins showed two major fragmentations (cleavage of the glycosidic bond linked to C-28 and loss of OCH_2 (30Da)), resulting in producing of tenuifolin (MW=680) and (M- OCH_2) ions and ions due to oligosaccharides.