Two-dimensional profiling of proteins from Curculigo latifolia fruit by three different extraction protocols.

ABSTRACT

Lemba, Curculigo latifolia (family Hypoxidaceae) is an indigenous plant of Malaysia, found mainly in swampy areas of tropical Asia and Australia. This study was designed to compare the efficiency of three protocols employed for the extraction of proteins from C. latifolia fruit and to find the best compatible with proteomic analysis of fruit on the basis of profiling using two-dimensional gel electrophoresis. Phenol, trichloroacetic acid–acetone and trichloroacetic acid–acetone/phenol-based extraction protocols were evaluated by examining the quantitative and qualitative characteristics of the extracted proteins. A few modifications were introduced to the phenol and the combination of phenol and trichloroacetic acid–acetoneprotocols in order to improve the two-dimensional gel electrophoresis analysis results. With the exception of trichloroacetic acid–acetone method, the two other protocols were found to extract proteins efficiently and reproducibly. The protein yields from the phenol (3.5 ± 0.12 mg/g) and trichloroacetic acid–acetone/phenol-based (3.7 ± 0.11 mg/g) protocols as well as and the two-dimensional gel electrophoresis patterns showed no appreciable differences. Since using phenol protocol is considerably more time consuming and laborious than the trichloroacetic acid– acetone/phenol-based protocol, therefore trichloroacetic acid–acetone/phenol-based protocol was considered to be a superior protocol for total proteins extraction of C. latifolia fruit.

Keyword: Curculigo latifolia; Fruit; Plant proteomics; Protein extraction; Two-dimensional gel electrophoresis.