

*Pueraria mirifica*-derived tuberous powder has been long-term consumed in Thailand as female hormone-replacement traditional remedies. The protein profiles of tubers collected in different seasons were evaluated. Phenol extraction, 2D-PAGE, and mass spectrometry were employed for tuberous proteome analysis. Out of the 322 proteins detected, over 59% were functionally classified as being involved in metabolism. The rest proteins were involved in defense, protein synthesis, cell structure, transportation, stress, storage, and also unidentified function. The proteins were found to be differentially expressed with respect to harvest season. Importantly, chalcone isomerase, isoflavone synthase, cytochrome p450, UDP-glycosyltransferase, and isoflavone reductase, which are all involved in the biosynthesis pathway of bioactive isoflavonoids, were most abundantly expressed in the summer-collected tubers. This is the first report on the proteomic patterns in *P. mirifica* tubers in relevant with seasonal variation. The study enlightens the understanding of variance isoflavonoid production in *P. mirifica* tubers.

Proteome analysis of *Pueraria mirifica* tubers in different seasons.

