

## Quantitative Analysis of (+)-Catechin and (-)-Epicatechin in Pentace burmanica Stem Bark by HPLC

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**Abstract :** Pentace burmanica Kurz., belonging to the Malvaceae family, is commonly used for anti-diarrhea in Thai traditional medicine. A method for quantification of (+)-catechin and (-)-epicatechin in P. burmanica stem bark from 12 different Thailand markets by reverse-phase high performance liquid chromatography (HPLC) was investigated and validated. The analysis was performed by a Shimadzu DGU-20A3 HPLC equipped with a Shimadzu SPD-M20A photo diode array detector. The separation was accomplished with an Inersil ODS-3 column (5  $\mu$ m x 4.6 x 250 mm) using 0.1% formic acid in water (A) and 0.1% formic acid in acetonitrile (B) as mobile phase at the flow rate of 1 ml/min. The isocratic was set at 20% B for 15 min and the column temperature was maintained at 40 °C. The detection was at the wavelength of 280 nm. Both (+)-catechin and (-)-epicatechin existed in the ethanolic extract of P. burmanica stem bark. The content of (-)-epicatechin was found as  $59.74 \pm 1.69$   $\mu$ g/mg of crude extract. In contrast, the quantitation of (+)-catechin content was omitted because of its small amount. The method was linear over a range of 5-200  $\mu$ g/ml with good coefficients ( $r^2 > 0.99$ ) for (+)-catechin and (-)-epicatechin. Limit of detection values were found to be 4.80  $\mu$ g/ml for (+)-catechin and 5.14  $\mu$ g/ml for (-)-epicatechin. Limit of quantitation of (+)-catechin and (-)-epicatechin were of 14.54  $\mu$ g/ml and 15.57  $\mu$ g/ml respectively. Good repeatability and intermediate precision (%RSD < 3) were found in this study. The average recoveries of both (+)-catechin and (-)-epicatechin were obtained with good recovery in the range of 91.11 - 97.02% and 88.53 - 93.78%, respectively, with the %RSD less than 2. The peak purity indices of catechins were more than 0.99. The results suggested that HPLC method proved to be precise and accurate and the method can be conveniently used for (+)-catechin and (-)-epicatechin determination in ethanolic extract of P. burmanica stem bark. Moreover, the stem bark of P. burmanica was found to be a rich source of (-)-epicatechin.

**Keywords :** pentace burmanica, (+)-catechin, (-)-epicatechin, high performance liquid chromatography

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