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# Development of RP-HPLC method for estimation of (-) epigallocatechin gallate in *Phoenix dactylifera* Linn.

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**Background:** *Phoenix dactylifera* Linn, commonly known as the date palm, is one of the ancient plants and has been cultivated for its edible fruit in the desert oasis of the Arab world. Dates contain mainly polyphenolic compounds, to which its pharmacological effect is attributed. (-) Epigallocatechin gallate, one of main constituents of *P. dactylifera*, is reportedly responsible for its pharmacological properties. There are no suitable methods available to quantify epigallocatechin gallate in *P. dactylifera.* In the present study, we would like to develop and quantify a suitable estimation/analytical method using sophisticated chromatographic techniques such as high performance liquid chromatography (HPLC).

**Methodology:** Epigallocatechin gallate was separated from other ingredients on Zorbax SB-C18 (5um, 4.6 X 150 mm) HPLC column using gradient elution consisting of 0.5% acetic acid in water: methanol: acetonitrile, in the ratio of 80-70%, 10-20%, and 10% respectively for first 4 min followed by 70-45% 20-40% 10-15% from 4 to 5 min. Identification wavelength was set to 272 nm. Mobile phase was injected at a flow rate of 1ml/min. Column temperature was maintained at 25 °C. Different samples of date palm extract were prepared by extracting the dried date palm fruit with methanol and water (5:1 v/v) at room temperature for 24 hours.

**Results & Discussion:** HPLC method was validated according to the ICH guidelines. The method was linear in the range of 2–100 µg/ml with good correlation coefficient (r2=0.998). The limit of detection (LOD) and limit of quantification (LOQ) were found to be 0.45 and 1.68 µg/ml, respectively. The interday and intraday precision was well within the acceptable range. The accuracy was found to be 99.86%. Finally, the method was successfully applied for determination of (-) epigallocatechin gallate from date palm fruit extract.

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