

**Determination of Curcumin in Capsule Containing  
*Curcuma xanthorrhiza* Roxb. Extracts  
by High Performance Liquid Chromatography**

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**ABSTRACT**

Curcumin, the major yellow pigment of *Curcuma sp.* has several interesting biological activities, such as anticarcinogenicity, antiinflammatory, and antioxidant. Curcumin naturally occurs as major compound in Curcuminoid substance beside its derivatives, i.e. Bisdemethoxycurcumin (BDC) and Demethoxycurcumin (DC). Quantitative analysis of Curcumin is difficult to carry out unless prior to completely resolved Curcumin from BDC and DC. A good resolution, reproducible, and accurate method for determination Curcumin in pharmaceutical product (capsule formed) by HPLC has been carry out.

Using  $C_{18}$  column and mixture of Acetonitrile: Acetic Acid glacial 1 % (45:55 v/v) as eluent, BDC, DC, and Curcumin were retained with retention time of 10.79, 12.29, and 13.91 minutes, respectively. Curcumin was simultaneously separated from BDC or DC. The resolution factor ( $R_s$ ) between Curcumin and DC was 1.73. Good linear relationship ( $r = 0.9997$ ,  $V_{x0} = 0.99\%$ ) between peak area and concentrations was found at range of the Curcumin concentration used, i.e. 23.56-62.83  $\mu\text{g/mL}$ . Curcumin recoveries were (93.60-118.17)% with the coefficient of variation (CV) 6.99%.

Curcumin content in each capsule sample was found to be  $(8.89 \pm 0.06)$  mg. It showed that samples contained higher amount of Curcumin than that claimed on its label, 5 mg.

**Keywords:** Bisdemethoxycurcumin, Demethoxycurcumin, Curcumin, Curcuminoid, HPLC.