

**DEVELOPMENT OF A SIMPLE PROTOCOL TO EXTRACT PURE  
CURCUMIN FROM TURMERIC (*Curcuma longa* L.) RHIZOME**

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by  
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## ABSTRACT

Turmeric, *Curcuma longa* L. of Zingiberaceae family is a widely cultivated spice in India and other Asian countries. Curcumin is the main colouring substance in *Curcuma longa* L. and together with the two related compounds demethoxycurcumin and bisdemethoxycurcumin are known as curcuminoids, which is approximately 2.5-6 % by weight of the rhizome of turmeric. Curcumin has powerful biological activities including anti-inflammatory, antioxidant, anti-carcinogenic, anti-viral and anti-infection activities. The objective of this study was to develop novel, high yielding, simple and economical protocol to extract pure curcumin from turmeric rhizome. Six treatments namely, T1-75% acetone extract of turmeric powder Salted out using NaCl, T2- 50% acetone extract of turmeric powder Salted out using NaCl, T3 - Crystal precipitation of saturated extract using 100g of turmeric powder with 300ml of acetone, T4 - Crystal precipitation saturated extract using 100g of turmeric powder with 500ml of acetone, T5 - Soxhlet extraction with acetone and T6 – Soxhlet extraction with ethanol were used and the experiment was conducted at Post harvest Technology laboratory, Central Research Station, Matala. Extracts from different treatments were analyzed for yield and purity of curcumin. TLC and UV – VIS Spectrophotometer were used to analyze the extract qualitatively and quantitatively. Pure curcumin was used as the reference standard for TLC to isolate pure curcumin from the curcuminoids. T4 showed significantly the highest curcumin yield and purity percentage while T6 showed significantly the lowest curcumin yield and purity percentage than that of other treatments ( $P < 0.05$ ). Among T1 and T2, high acetone strength has given the best purity ( $P < 0.05$ ) while there was no significant different between T1 and T2 for yield ( $P > 0.05$ ). Therefore crystal precipitation method using 100g of turmeric powder with 500ml acetone (T4) can be considered as the best protocol to isolate curcumin from turmeric rhizome.

Keywords: Curcumin, Isolation, Protocol, Turmeric, Yield