

Inhibitory Effect of Temulawak (*Curcuma xanthorrhiza*) and Kunyit (*Curcuma domestica*) on Glucosyl Transferase Activity

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ABSTRACT

The present study evaluated the chemical composition and glucosyltransferase activity of the extracts and fractions of *Curcuma xanthorrhiza* (Temulawak) and *Curcuma domestica* (Kunyit). Methanol, 50% ethanolic extract, hexane, ethyl acetate and water fractions of *Curcuma xanthorrhiza* and *Curcuma domestica* were chemically identified by chromatographic methods and tested on glucosyltransferase of *Streptococcus sobrinus* activity. Glucosyltransferase activity was tested by incubating a crude enzyme preparation with sucrose and determining the amount of water-insoluble glucan formed. Some compounds were identified in both *Curcuma* extracts, including -curcumene, cynammyl tiglate, bicycle [3.3.1] non-ene-9-ol and germacrone (*Curcuma domestica*) and camphor, zingiberene, -curcumene, -farnese, -cedrene, -elemenone, and xanthorrhizol (*Curcuma xanthorrhizol*). Both Temulawak and Kunyit extracts could inhibited the formation of water-insoluble glucan in all fractions, except Temulawak water fraction. The 50% inhibitory doses of Temulawak extracts against the glucosyltransferase of *S. sobrinus* were ranged at 37.27 >250 g/ml. The concentration of IC_{50} of Kunyit extracts were ranged at 13.78 > 250 g/ml. Our results suggest that Temulawak and Kunyit extract may prove effective for the inhibition of glucosyltransferase. Thus, these extracts may be of great interest for future studies about treatment of oral diseases, considering their potent inhibitory activity on glucosyltransferase of *S. sobrinus*.

Keyword : Glucosyltransfrase, *Curcuma xanthorrhiza*, *Curcuma domestica*