

ABSTRACT

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CONVERSION OF CRUDE CURCUMIN ANALOG WITH AROMATIC ALDEHYDE AND DETERMINATION OF ITS ANTIOXIDANT ACTIVITY

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Curcumin which contains in turmeric is known as a great potential bioactive compound that exhibits antioxidant activity. The aim of this research was to investigate the antioxidant activity of the crude curcumin analog with different types of aldehyde which were benzaldehyde and cinnamaldehyde, modifier and sulfuric acid as catalyst under Biginelli reaction. The reaction took place under different catalyst amount of 2.35 mmol, 4.69 mmol, 9.38 mmol and 14.07 mmol with presence of solvent and solvent-free. The result showed that 4.69 mmol catalyst amount with the presence of solvent had higher yield. The chosen catalyst amount was applied to the next step and results showed that using benzaldehyde and thiourea had better antioxidant activity of IC_{50} 14.4633 ± 3.541 mg/mL and with yield of $50.2833 \pm 4.989\%$. The chosen crude curcumin analog had lower antioxidant activity compared to the commercial curcumin by decreasing 25% of the antioxidant activity which led the crude curcumin analog shifting to a shorter wavelength in UV-Vis spectrum of 200-800 nm. From the spots that showed in TLC plate, it could be as an evidence that the curcumin had been converted.

Keywords: Antioxidant activity, benzaldehyde, cinnamaldehyde, curcumin, guanidine, thiourea, urea

References: 57 (1996-2017)