



Potential Bengle(*Zingiber cassumunar* Roxb.) Rhizomes for Sunscreen and Antioxidant Compounds

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Abstract: Bengle(*Zingiber cassumunar* Roxb.)rhizome is one of rhizomes commonly used to maintain healthy for skin, this activities are possibly due to its abilities to inhibit the harmful effect of the sun light and the occurrence of oxidative reaction. Therefore, this study was aimed to determine the ability to protect skin from the sun (sun screen) and antioxidant activity of *Z. cassumunar* ethanol extract (Et-B) compared to that of Temu giring (*Curcuma heyneana*) extract (Et-Tg) that has been clinically used. Sunscreen activities were evaluated by spectrophotometric method as the Sun Protection Factor (SPF) values. Antioxidant potential was determined by 1,1-diphenyl-2-picrylhydrazil (DPPH) radical scavenging method, and vitamin C used as reference. Et-B showed activityasa sunscreenhaving SPFvalue 8.81 ± 0.25 and antioxidant activityat IC_{50} value 0.793 ± 0.105 mg/ml that were betterthan that of Et-Tg (SPFvalue, 2.33 ± 0.31 and IC_{50} , 1.119 ± 0.195 mg/ml). Et-B wasthenfractionatedin a mixture ofn-hexane: ethanol: water(28:8:2v/v), to give 2layers, the upper (non-polar) and lower (polar) layers. The upper layershows theSPFvalue of 36.30 ± 0.35 , that is better than that ofthe lower layer(12.27 ± 1.68), and the lower layer is more antioxidant active($IC_{50} = 0.996\pm 0.121$ mg/ml) than that of the upper layer($IC_{50} = 2.842\pm 0.228$ mg/ml). Researchresults indicates that*Z. cassumunar* potential to be developedinpreparationfor sunscreenrepresented by the non-polar substances of the upper layer andantioxidants represented by the more polar substances in the lower layer.

KeyWords: Antioxidant, 1,1-diphenyl-2-picrylhydrazil, Sunscreen, Sun Protection Factor, *Zingiber cassumunar* Roxb.

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