

Antioxidant Activity Associated with Lipid and Phenolic Mobilization during Seed Germination of *Pangium edule* Reinw.

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Abstract

Seeds of the tropical tree *Pangium edule* Reinw. are widely eaten in Southeast Asia after some treatment or processing. Fermented seeds are a specialty in Indonesia and have been used as spices. Because the tree is wild and has not been cultivated commercially, the physiology of germinated seeds of this tree for food uses is not known. This study reports some biochemical changes during seed germination associated with antioxidant activity and the mobilization of lipids and phenolics. Lipid content decreased, whereas the dominant fatty acids did not change significantly. The dominant fatty acids were oleic acid (C_{18:1(n-9)}) and linoleic acid (C_{18:2(n-6)}). During germination, oleic acid decreased while linoleic acid increased proportionally. The hypocotyl synthesized chlorophyll and the tocol composition also changed substantially. The antioxidant activity of phenolic extract increased in proportion to the total phenolics. Guaiacol peroxidase and glucose-6-phosphate dehydrogenase, selected enzymes association with phenolic metabolism, showed that the increased activities coincided with increased total phenolics and free proline.

Keywords : *Pangium edule*; seed germination; fatty acids; tocols; guaiacol peroxidase; glucose-6-phosphate dehydrogenase; total phenolics; free proline