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Anant Oonsivilai

Suranaree University of Technology, Thailand

Extraction and bioactivities of Thai basil (*Ocimum basilicum* L)

Thai basil *Ocimum basilicum* var. *thyrsoflorum* and *Ocimum basilicum* cv. Jumbo 4320 were extracted by three solvents, namely water, ethanol and ethyl acetate. HPLC analysis showed that ethanol and ethyl acetate extracts contained primarily chlorophyll a, chlorophyll b, pheophytin a, pheophytin b and lutein. *O. basilicum* var. *thyrsoflorum* ethanol extract showed the highest chlorophylls and lutein contents. The contents of the phenolic acids and flavonoids were found to be gallic acid, catechin, apigenin, caffeic acid, coumaric acid and sinapic acid. The total phenolic contents, evaluated by Folin-Ciocalteu method, revealed that *O. basilicum* cv. Jumbo 4320 water extract showed the highest value at 4,596.19±3.07 µg GAE/g of raw material (RM). The *O. basilicum* cv. Jumbo 4320 ethanol extract showed the highest total flavonoid content at 5,571.16±14.27 µg catechin equivalent/g of RM. Antioxidant activities of all extracts were evaluated by DPPH, FRAP and DCFH-DA assays. The *O. basilicum* cv. Jumbo 4320 water extract showed the highest antioxidant activity by DPPH assay at IC₅₀ 48.52±1.15 mg of RM/ml. However, *O. basilicum* var. *thyrsoflorum* ethanol extract showed the highest antioxidant activity by FRAP assay at 18.64±0.13 µmol Fe²⁺/g RM followed by water and ethyl acetate extracts. *O. basilicum* cv. Jumbo 4320 water extract showed the highest cellular antioxidant activity by DCFH-DA assay at relative fluorescence intensity 80.62±0.00%. The antimicrobial activity was evaluated by the agar disk diffusion method. Almost all extracts had no effect on tested pathogenic strains. Only *Bacillus cereus* was inhibited by *O. basilicum* var. *thyrsoflorum* ethyl acetate extract and *O. basilicum* cv. Jumbo 4320 water extract. Antithrombotic activity of Thai basil extracts was evaluated by prothrombin time assay. *O. basilicum* var. *thyrsoflorum* ethyl acetate extract showed the highest prolonged prothrombin time at 78.3±17.56 seconds. In conclusion, both species of Thai basil extracts showed the potential for healthy food ingredients.

Biography

Anant Oonsivilai received his BE from Khon Kaen University; M E from King Mongkut Institute of Technology North Bangkok, Thailand and PhD from Dalhousie University, Canada, all in Electrical Engineering, in 1986, 1992 and 2000, respectively. He is currently an Assistant Professor at Suranaree University of Technology, Thailand. His areas of interest are "Electrical power system, stability, control technology, advance alternative, and sustainable energy".

anant@sut.ac.th

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