Clove (Syzygium Aromaticum)
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Chapter 14 - Clove (*Syzygium aromaticum*) phenolics: Extraction, compositions, and biological activities

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Abstract

Clove (*Syzygium aromaticum* L.) is a dried flower bud belonging to the Myrtaceae family indigenous to Indonesia. Recently, it has been farmed in different places worldwide with potential food and nutraceutical applications. Clove volatile compounds contribute to the smell and unique aroma; meanwhile, nonvolatile compounds in the clove are mainly responsible for the taste. Clove is well known for its high level of antioxidants because of the flavonoids, hydroxy benzenes, phenylpropanoids, and other reducing substances. Clove phenolics comprise between 8% and 12% (w/w) gallic acid equivalents and are mainly composed of hydrolyzable tannins, phenolic acids, flavonoids, and eugenol, major bioactive molecules in this valuable herb. Gallic acid is the highest among the phenolic acids in clove and other gallic acid derivatives such as hydrolyzable tannins, which are also present in higher concentrations. Other phenolic acids found in the clove are ellagic, ferulic, caffeic, and salicylic acids. In addition, flavonoids such as quercetin and kaempferol were reported. This chapter will focus on clove phenolics' structure, composition, and biological activities.

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Keywords

Phenolic compounds; Phytochemicals; Eugenol; Gallic acid; *Syzygium aromaticum*

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