

Nutritional Value and Functional Property of Lemon Seed during Germination

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[Introduction]

Lemon is one of the preferred fruits for many people around the world. They have outstanding flavor and acidity, and possess potential application as industrial and value-added food products. Lemon fruit contains various important natural compounds, including phenolics and other vitamins, minerals, dietary fiber, essential oils and carotenoids. A large amount of the fruits are basically used in juice processing industries while the peels and seeds are generally discarded as wastes. The objective of this study was to investigate the chemical characteristics, salicylic acid content, and antioxidant potential of germinating lemon seeds. We will also analyze the salicylic acid, which are recently considered to have health benefits for human, content of lemon seeds and sprouts.

[Materials and Methods]

Lemon (*Citrus limon* Burm. f.) fruits were purchased from a local store in Daegu, Korea. Three hundred intact seeds were thoroughly washed with tap water and kept for sprouting into an automatic sprouter (Model Chungsiroo SC-9000, Sinchang Inc, Osan, Korea). After that, germination was performed under various conditions. DPPH free radical scavenging activity, salicylic acid content, total phenolic content, mineral content and free amino acid content were investigated.

[Results and Discussions]

The amount of total phenol content increased with the time of germination with the lowest value for seeds (240.92 μ g GAE/g) and the highest for the sprouts after 20 day of germination (374.54 μ g GAE/g). The salicylic acid content was highest in the seeds (13.599 ng/g) and decreased in sprouts. Mineral content was also slightly reduced with sprouting. However, total free amino acid content in the sprouts of 20 day after germination was dramatically increased from 46.274 in seed to 164.824 mg/kg in the sprouts. Results of this study showed that lemon seeds could be used as a new source of protein, mineral, and salicylic acid for industrial applications.

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