



Short report

Free radical scavenging effect of *Diospyros kaki*,
Laminaria japonica and *Undaria pinnatifida*

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Abstract

Diospyros kaki folium, *Laminaria japonica* thallus and *Undaria pinnatifida* thallus have been used traditionally in Korea to promote maternal health. The scavenging activity against DPPH (1,1-diphenyl-2-picrylhydrazyl) radicals of the methanol extracts of these plants were investigated. The extract of *D. kaki* was found to be the most potent, with an IC₅₀ value of 0.11 mg/ml.

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Keywords: *Diospyros kaki*; *Laminaria japonica*; *Undaria pinnatifida*; Free radical scavenging activity

Plant. *Diospyros kaki* Thunb. (Ebenaceae) folium, *Laminaria japonica* Aresch. (Laminariaceae) thallus and *Undaria pinnatifida* (Harv.) Suringar (Alariaceae) thallus were purchased at Kyoungdong market in November 2001. The samples were authenticated by our Department of Pharmacology, where the voucher specimens are preserved.

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Uses in traditional medicine and reported activities. *D. kaki* folium is well known in Korean traditional medicine for alleviating coughs and enhancing blood circulation. It has been used for treatment of diabetes mellitus, asthma and the common cold [1]. *L. japonica* is known to possess a hypotensive effect [2] and *U. pinnatifida* to prevent coagulation of human blood and to have an antitumor effect [3].

Previously isolated classes of constituents. *D. kaki*: catechins [1]; *L. japonica*: polysaccharides; *U. pinnatifida*: polysaccharides [4].

Tested material. Methanol extracts of *D. kaki* (yield: 20.0%), *L. japonica* (24.1%) and *U. pinnatifida* (22.0%), obtained by 48-h maceration at room temperature [5].

Studied activity. Scavenging activity against DPPH (1,1-diphenyl-2-picrylhydrazyl) free radicals [5,6].

Results. Reported in Table 1.

Table 1

Free radical scavenging activity of methanol extracts of *Diospyros kaki*, *Laminaria japonica* and *Undaria pinnatifida*

Plant	Scavenging activity (%) ^a	IC ₅₀ ^d
<i>Diospyros kaki</i> (folium)	89.3 ^b	0.11 (mg/ml)
<i>Laminaria japonica</i> (thallus)	35.2 ^b	2.10 (mg/ml)
<i>Undaria pinnatifida</i> (thallus)	35.8 ^b	1.80 (mg/ml)
Ascorbic acid ^c	58.9	0.17 (mM)

^aPercentage of DPPH (1,1-diphenyl-2-picrylhydrazyl) free radicals removed.

^bTested at a concentration of 1 mg/ml.

^cReference standard, tested at a concentration of 0.2 mM.

^dIC₅₀; the concentration of drug required for 50% inhibition.

Conclusions. Among the examined plants, *D. kaki* was shown to possess the most potent free radical scavenging activity.

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