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Bismillahirrahmanirrhim

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Demikian harap dilaksanakan sebaik-baiknya.

Surakarta, 26 Oktober 2013
Ketua

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<tr>
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Mengetahui:
Panitia Pelaksana

(_______)
ANTIOXIDANT ACTIVITY, TOTAL PHENOLIC AND FLAVONOID CONTENT OF ETHANOLIC EXTRACTS OF LOCAL LONGAN (Euphorbia longan Lour.) SEEDS AND RINDS

Muhtadi*, Rifka Annida, Rosita Melannisa, Haryoto, Tanti Azizah, Peni Indrayudha, Andi Suhendi

The antioxidant, total phenolics and flavonoid content of local Longan (Euphorbia longan Lour.) seeds and rinds were determined. The antioxidant activity test of ethanolic extract, hexane, ethyl acetate and methanol-water fractions of local longan seeds and rinds were evaluated by DPPH (2,2-diphenyl-1-picrylhydrazil) method. The total phenolic contents and total flavonoid contents were assessed spectrophotometrically. The results showed that the fraction of ethanol extract, ethyl acetate and methanol-water of longan seeds and rinds had high antioxidant activity whereas the hexane fraction had lowest activity. The highest activity was indicated of the ethyl acetate fraction longan rinds (IC50 = 9.23 μg/ml), ethyl acetate fraction longan seeds (IC50 = 9.50 μg/ml), and wasn’t significantly differ with vitamin E (IC = 8.88 μg/ml). The total phenolic content of the ethanol extract of longan rinds and seeds as well as fractions ranged from 8.72 ± 0.64 to 692.85 ± 41.11 mg/g sample. Whereas the total flavonoid levels in the samples ranged from 80.64 ± 6.98 to 680.15 ± 40.94 mg/g sample.

Keywords: Ethanol extract of the local longan seeds and rinds, fractions, antioxidants, 2,2-diphenyl-1-picrylhydrazil, total phenolic, total flavonoid.

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ANTIOXIDANT ACTIVITY, TOTAL PHENOLIC AND FLAVONOID CONTENT OF ETHANOLIC EXTRACTS OF LOCAL LONGAN (Euphorbia longan Lour.) SEEDS AND RINDS

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Abstract

The antioxidant, phenolics total and flavonoid content of local Longan (Euphorbia longan Lour.) seeds and rinds were determined. The antioxidant activity test of ethanolic extract, hexane, ethyl acetate and methanol-water fractions of local longan seeds and rinds were evaluated by DPPH (2,2-diphenyl-1-picrilhydrazil) method. The total phenolic contents and total flavonoid contents were assessed spectrophotometrically. The results showed that the fraction of ethanol extract, ethyl acetate and methanol-water of longan seeds and rinds had high antioxidant activity whereas the hexane fraction had lowest activity. The highest activity was indicated of the ethyl acetate fraction longan rinds (IC_{50} = 9.23 µg/mL), ethyl acetate fraction longan seeds (IC_{50} = 9.50 µg/mL), and wasn’t significantly differ with vitamin E (IC_{50} = 8.88 µg/mL). The total phenolic content of the ethanol extract of longan rinds and seeds as well as fractions ranged from 8.72 ± 0.64 to 692.85 ± 41.11 mg/g sample. Whereas the total flavonoid levels in the samples ranged from 60.64 ± 6.98 to 680.15 ± 40.94 mg/g sample.

Keywords: The local longan seeds and rinds, ethanol extract and fractions, antioxidants, 2,2-diphenyl-1-picrilhydrazil, total phenolic, total flavonoid.

Introduction

1. This research aims to determine the potential activity of antioxidant of local Longan (Euphorbia longan Lour.) seeds and rinds using DPPH assay.
2. To search the prospective antioxidant of crude extract and their fractions from local Longan (Euphorbia longan Lour.) seeds and rinds as herbal medicine material.

Research Method

- Fruit peels are often regarded as a waste or garbage.
- Whereas chemically, “waste” are organic materials = chemicals substances that have chemical and biological activity.
- Pre-screening studies to test the antioxidant activity, cytotoxic and antibacterial of waste fruit peels are still very limited.
- From Kelengkeng (Euphoria longan) fruit skin: (-)-epicatechin, proanthocyanidin A2, ellagite acid, quercetin, kaempferol glycosides and hydroxycynamate derivatives (Jaitrong et. al, 2006).

Objective

1. This research aims to determine the potential activity of antioxidant of local Longan (Euphorbia longan Lour.) seeds and rinds using DPPH assay.
2. To search the prospective antioxidant of crude extract and their fractions from local Longan (Euphorbia longan Lour.) seeds and rinds as herbal medicine material.

Result & Discussion

- Ethanolic extract of Longan seed and peel had IC_{50} value near similar to Vitamin E.
- Ethyl acetate fraction of Longan seed and peel are more active than total extract and the other fraction. Ethyl acetate fraction has highest antioxidant activity.

Conclusions

- Ethanolic extract of Longan seed and peel had IC_{50} value near similar to Vitamin E.
- Ethyl acetate fraction of Longan seed and peel are more active than total extract and the other fraction. Ethyl acetate fraction has highest antioxidant activity.

Table 1. Antioxidant activity, flavonoid and phenolic total levels of ethanol extract and their fraction of Longan peel and seed.

<table>
<thead>
<tr>
<th>Sample</th>
<th>Antioxidant activity (IC_{50} µg/mL)</th>
<th>Flavonoid (mg/g sample)</th>
<th>Phenolic (mg/g sample)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peel</td>
<td>8.88 ± 0.96</td>
<td>677.89 ± 2.81</td>
<td>658.80 ± 61.45</td>
</tr>
<tr>
<td>Ethanolic extract</td>
<td>8.52 ± 0.15</td>
<td>601.15 ± 0.68</td>
<td>610.84 ± 10.11</td>
</tr>
<tr>
<td>Hexane fraction</td>
<td>42.08 ± 1.69</td>
<td>354.64 ± 6.04</td>
<td>251.21 ± 3.09</td>
</tr>
<tr>
<td>Ethyl acetate fraction</td>
<td>11.85 ± 0.06</td>
<td>120.56 ± 5.85</td>
<td>251.21 ± 15.52</td>
</tr>
<tr>
<td>Methanol water fraction</td>
<td>14.11 ± 0.21</td>
<td>116.89 ± 13.85</td>
<td>251.21 ± 15.52</td>
</tr>
<tr>
<td>Ethanolic extract</td>
<td>8.92 ± 0.20</td>
<td>601.15 ± 0.68</td>
<td>251.21 ± 15.52</td>
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Referenc


International Conference on Medicinal Chemistry and Timmermann Award 2013, Jakarta; October 29-30, 2013