Evaluation of the Antioxidant Activities of Aqueous Extracts of Fresh Madeni Rose Petals

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Introduction
Recently, there is an increasing interest for the use of naturally occurring antioxidants in cosmetic, food, and pharmaceutical applications. Antioxidants have been widely used as food additives to provide protection against oxidative degradation of foods by free radicals.

Madeni rose, Ward Madeni (Rosa damascena mill) is a type of Damask rose, which is considered one of the most important economic products of Madinah Al-Munawarah in Saudi Arabia. Fresh Madeni rose petals are suggested to have useful antioxidants properties which carry important health benefits.

Methods
Fresh rose petals were prepared as traditionally consumed by Saudi people. The concentration of total phenolics (TPC) was measured by Folin-Ciocalteau method while the concentration of total flavonoids (TFC) was measured by aluminum chloride method. Antioxidant properties of aqueous extracts were evaluated by assaying for DPPH radical scavenging activity, H2O2 radical scavenging activity, Ferrous ion chelating ability, and reducing power. The methanolic extract of Fresh Madeni rose petal was analyzed using (Agilent Technologies, California, USA) equipped with diode array detection. HPLC separation was performed on a Pinnacle DB C18 (5 μm, 250 × 4.6 mm, USA).

Results

Table 1: Total phenolic and total flavonoid content of aqueous extracts of fresh Madeni rose petals.

<table>
<thead>
<tr>
<th>Concentration (mg/ml)</th>
<th>Total phenolic content (μg/mg of gallic acid)</th>
<th>Total flavonoid content (μg/mg of catechin)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.5</td>
<td>118 ± 0.01</td>
<td>-</td>
</tr>
<tr>
<td>5</td>
<td>235 ± 0.02</td>
<td>3.1 ± 0.05</td>
</tr>
<tr>
<td>10</td>
<td>388 ± 0.01</td>
<td>17.8 ± 1.19</td>
</tr>
</tbody>
</table>

* All values are expressed as mean ± SD for three determinations.

Discussion

From the results, the antioxidant activity of the aqueous extract of fresh Madeni rose petal based on DPPH scavenging activity, H2O2 scavenging activity, ferrous chelating and reducing power activity are attributed to the presence of phenolic compounds as major components in this species and there is positive correlation between the antioxidant activity and the total phenolics and flavonoids.

Conclusions

The results obtained from this study clearly indicated that fresh Madeni rose petals extracts contain phenolic and flavonoid compounds. These compounds might be helpful in reducing the risk of the different diseases associated with the oxidative stress. Thus, the addition of rose petals extracts to foods, drinks, cosmetic, and pharmaceutical products can act as a non-cafeine source of natural antioxidants.

References


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