Plants for Bees

Ivy tree: a major nectar plant in winter for *Apis cerana* in South China

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**Description**

The ivy tree, *Schefflera octophylla*, is an evergreen tree or shrub of the Araliaceae family. It is between 2 m and 15 m tall, with a palmate compound leaf composed of 6-9 leaflets, elliptical lamina, 7-17 cm long and 3-6 cm wide. The flowers are small and yellowish white in terminal panicled cymes; the corolla limb has five valvate, triangular segments; the flowers have a hypogynous ovary, syncarpous style, spherical drupe and five exserted stamens which produce large amounts of pollen (fig. 1).

The floral buds of the ivy tree begin to differentiate in September, 50-60 days before blooming, but the differentiation of buds and the growth of the inflorescence are affected by air temperature. In general, low air temperature and great differences in temperature between day and night are favourable for the processes. It blooms profusely from the first 10 days of November to the first 10 days of the following year. The flowering stage is in three periods with a duration of 10 days, 12-15 days and 7-10 days respectively, and intervals between first period and second, and between second and third are 6-14 days and 5-12 days respectively. However, old trees bloom before young ones and the flowers on the upper shoots bloom before those on bottom shoots. Often the lower shoots are still flowering while the upper shoots are setting fruits.

**Fact box**

- **Species:** *Schefflera octophylla*
- **Family:** Araliaceae
- **Distribution:** found commonly in tropical and subtropical zones in China, thriving in fertile soil and growing well on hillsides or in sunny forest clearings.
- **Flowering period:** the first 10 days of November to the first 10 days of the following year
- **Honey:** fresh honey is amber in colour with a pleasant aroma and slightly bitter flavour, containing carbohydrate with a concentration of more than 74% which leads to easy granulation 6 months after extraction. However, the honey can be kept without any change in quality for several years.
- **Pollen:** pollen grains are spherical, about 27.7 μm long and 26.5 μm wide.
- **Value to bees:** pollen and nectar are plentiful for *Apis cerana* to collect when other nectar plants are scarce in winter.
- **Habitat:** commonly found in the mountainous and hilly areas in tropical and subtropical zones of China.

**Honey**

Honey and beekeeping are the main source of income for beekeepers in the areas where the ivy tree is found. Bees in the honey-producing areas of China are well adapted to the flora and fauna of the region and produce high-quality honey with a pleasant aroma and slightly bitter flavour. Beekeepers in the area are knowledgeable about the flora and fauna of the region and make use of the floral resources to produce high-quality honey. The honey is collected in December, and its quality is tested and recorded. The honey is classified into several grades based on its color, aroma, and taste. The honey is then sold in the local markets or exported to other regions of China. The honey is used in cooking and baking, and is also used in traditional Chinese medicine. The honey is also exported to other countries, especially to Europe and the United States. The honey is a valuable product that provides income for beekeepers in the area and contributes to the local economy.

**Other uses:** the timber of the tree can be used for furniture and fuel in mountainous areas.

**Habitat**

The ivy tree is commonly found in the mountainous and hilly areas in tropical and subtropical zones of China. It thrives in fertile soil and grows well on hillsides or in sunny forest clearings. Fujian, Guangdong and Guangxi provinces in the south of China are the areas where the ivy tree serves as an excellent nectar plant in winter for beekeeping and honey gathering.

**Honey**

A study was made of the quality of honey collected in December 1995 from *Apis cerana* colonies in an ivy tree forest in Lanjing county, Fujian Province. The fresh honey was amber in colour, with a pleasant aroma and a slightly bitter flavour, containing carbohydrate with a concentration of more than 74% (table I), which leads to easy granulation 6 months after extraction. However, the honey can be kept without any change in quality for several years.

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TABLE I. Main constituents of ivy tree honey.

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glucose</td>
<td>30.133%</td>
</tr>
<tr>
<td>Fructose</td>
<td>44.409%</td>
</tr>
<tr>
<td>Sucrose</td>
<td>2.266%</td>
</tr>
<tr>
<td>Proteins</td>
<td>0.187%</td>
</tr>
<tr>
<td>Acidity</td>
<td>1.592%</td>
</tr>
<tr>
<td>Enzyme value</td>
<td>6.5</td>
</tr>
<tr>
<td>Water</td>
<td>20.1%</td>
</tr>
<tr>
<td>Ash</td>
<td>0.02%</td>
</tr>
</tbody>
</table>

Further reading


Foraging

*Apis cerana* was found to tolerate the cold better than *Apis mellifera* and can tolerate weather below 10°C. In the north China region, where temperatures drop below 15°C between 11:00 h and 16:00 h, workers usually find nectar from *A. cerana* flowers between 10:00 h and 16:00 h. When temperatures were observed, colonies of *A. cerana* were observed collecting nectar and pollen better than *A. mellifera*. A colony of *A. cerana* was found to collect the cold

**Pollen**

Pollen is an important food for *A. cerana* brood. In the initial brood stage (1.5-1.58 mm), the nectar intake of *A. cerana* workers is slightly higher than that of *A. mellifera* workers, but the difference is not statistically significant. During the honey super stage (2.5-7.5 mm), the pollen intake of *A. cerana* workers is significantly higher than that of *A. mellifera* workers, and the size of the pollen grains is smaller. **Further Reading**