

Organoleptic and phytochemical evaluation of different extracts of *Orthosiphon aristatus* (Blume) Miq. whole plant of Cambodia

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Abstract: *Orthosiphon aristatus* (Blume) Miq. also known as cat's whiskers or java tea is a branched herbaceous plant that belong to Lamiaceae family. It is a medicinal herb traditionally used as remedies for various ailments in Southeast Asia and in Europe. It possesses an anti-inflammatory, anti-hypertensive, anti-microbial properties and also enhances the urine flow. This study was conducted to evaluate the organoleptic features and phytoconstituents of *Orthosiphon aristatus* (Blume) Miq. native to Cambodia. The organoleptic feature was evaluated by means of sense organs such as colour, odour, taste and texture parameters. The dried plant was extracted with three solvents including methanol, ethanol and chloroform. The organoleptic features of the dried *Orthosiphon aristatus* (Blume) Miq. revealed that the leaves were greenish; the flowers were whitish; the odour was pleasant; and the texture was characteristic. The extracting yields of *Orthosiphon aristatus* (Blume) Miq. whole plant accounted for 4.15% (chloroform extract), 0.71% (ethanol extract) and 9.54% (methanol extract). The phytochemical evaluation of these three solvent extracts gave the positive tests of flavonoids, essential oils, alkaloids, phenolic compounds and tannins. The profiles of organoleptic features and phytochemicals of this Cambodian *Orthosiphon aristatus* (Blume) Miq. are of great importance in term of plant drug standardization and its novel compound isolation.

INTRODUCTION

Orthosiphon aristatus (Blume) Miq. also known as cat's whiskers or java tea is a branched herbaceous plant that belong to Lamiaceae family. It possesses an anti-inflammatory, anti-hypertensive, anti-microbial properties and also enhances the urine flow (Logeshbabu *et al.*, 2017). This study was conducted to evaluate the organoleptic features and phytoconstituents of *Orthosiphon aristatus* (Blume) Miq. native to Cambodia.

METHODOLOGY

Dried whole plant of *Orthosiphon aristatus* (Blume) Miq. were collected from the local plant drugstore and authenticated by University of Puthisastra (UP)-Herbarium (UPFPH-050015). The organoleptic feature was evaluated by means of sense organs such as colour, odour, taste and texture parameters. Dried plant was extracted with three solvents like methanol, ethanol and chloroform. Extracting yields were subjected to analysis of phytochemicals.

FINDINGS AND DISCUSSION

Table 1: Organoleptic features of *Orthosiphon aristatus* (Blume) Miq.

| Particulars | Stems | Flowers | Leaves |
|-------------|----------------|--------------------|------------------|
| Condition | Dried | Dried and crumpled | Dried and broken |
| Color | Brown | Whitish | Greenish |
| Odour | Pleasant | Pleasant | Pleasant |
| Taste | Bitter | Bitter | Bitter |
| Texture | Characteristic | Characteristic | Characteristic |

Table 2: Extracting yields of different extracts of whole plant of *Orthosiphon aristatus* (Blume) Miq.

| Extracts of Whole Plant of <i>Orthosiphon aristatus</i> (Blume) Miq. | Extracting Yields (%) |
|--|-----------------------|
| Methanol extract | 9.54 |
| Ethanol extract | 0.71 |
| Chloroform extract | 4.15 |

Table 3: Phytochemical screening of whole plant of *Orthosiphon aristatus* (Blume) Miq.

| Phytochemicals | Chemical Tests | Methanol Extract | Ethanol Extract | Chloroform Extract |
|--------------------|-----------------|------------------|-----------------|--------------------|
| Alkaloids | Mayer | Positive | Positive | Positive |
| | Wagner | Positive | Positive | Positive |
| Saponins | Froth | Negative | Negative | Negative |
| Flavonoids | Ammonium | Positive | Negative | Negative |
| Triterpenoids | Salkowski | Negative | Negative | Negative |
| Tannins | Ferric Chloride | Negative | Negative | Negative |
| Phenolic compounds | Ferric Chloride | Positive | Negative | Negative |
| Resins | Turbidity | Negative | Positive | Positive |
| Essential oils | NaOH-HCl | Positive | Positive | Positive |



Figure 1. *O. aristatus*

Class: Equisetopsida

Order: Lamiaceae Bromhead

Family: Lamiaceae

Genus: *Orthosiphon*

Species: *Aristatus*

Botanical name: *Orthosiphon aristatus* (Blume) Miq.

Khmer name: Puk Mort Chmar

English name: Cat's whiskers

Chin-Lin *et al.* (2010) reported that *Orthosiphon aristatus* (Blume) Miq. extracted with methanol and ethanol gave extracting yields of 9.18% and 11.3% respectively, which agree with our findings. The *Orthosiphon aristatus* (Blume) Miq. exhibit the phytochemical components i.e., alkaloids, saponins, flavonoids, triterpenoids, resins, tanins, essential oils are either present in the plant and finding were summarized in (Table 2) which are play an importance role in the biological activities of medicinal plants such as antioxidant, anti-inflammatory, anti-bacterial. (Logeshbabu *et al.*, 2017)

CONCLUSION

The result of this preliminary study profiles the scientific information for the proper organoleptic features and phytochemical with different extracts of Cambodian *Orthosiphon aristatus* (Blume) Miq. contains alkaloids, flavonoids, phenolic compound, resin and essential oils. These results are of great importance in term of plant drug authentication and in performing further isolation research of novel compounds.

REFERENCES

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