

# Antioxidant activity and phenolic content of different parts of *Orthosiphon stamineus* grown under different light intensities

## Abstract

*Orthosiphon stamineus* is an important medicinal plant in South-East Asia. Although already widely cultivated, the influence of growing conditions, especially light intensity, on the antioxidant property of *O. stamineus* is still unknown. Thus, the objective of this study was to determine the antioxidant activity and phenolic content of different plant parts of *O. stamineus* and to propose the best environment condition for its cultivation. The leaves, stems and roots of *O. stamineus* treated in open environment were extracted with methanol for 4 hours in a shaking water bath at 40°C. Total phenolic content (TPC) and antioxidant activity were determined using Folin-Ciocalteu and 2,2-diphenyl-1-picrylhydrazyl (DPPH) methods respectively. In the first part of the experiment, only seedlings grown in the open environment were used. TPC was higher in leaves (230 mg gallic acid g<sup>-1</sup> dry weight) compared with stems and roots (160 and 140 mg gallic acid g<sup>-1</sup> dry weight respectively). However, antioxidant activity was lower in leaves (78.43%) than stems (80.66%) and roots (80.26%). By selecting leaves as the main part to study, *O. stamineus* grown under shaded treatment (50 and 70% shaded) as well as open environment were harvested to determine their TPC and antioxidant activities. It was observed that TPC in *O. stamineus* leaves grown in open environment was highest (230 mg gallic acid g<sup>-1</sup> dry weight) compared with shade-grown seedlings. Similarly, antioxidant activity was also highest in seedlings grown in open environment (80.02%) compared with in shade (50% = 77.72%, 70% = 74.37%)