

## Exploring the diverse antioxidant activity of Chinese traditional medicines as potent anti-inflammatory agents

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In order to neutralize reactive oxygen species (ROS), which are linked to a number of illnesses, including inflammation, antioxidant activity is essential. TCMs are renowned for their anti-inflammatory properties, attributed to bioactive compounds such as phenolic compounds, flavonoids, and terpenoids.

Our research sought to assess the antioxidant activity of Chinese traditional medicines (TCMs), specifically *Erycibe obtusifolia Benth* (EO) and *Canavalia gladiata (Jacq.) DC* (CG), as well as to identify the essential bioactive components responsible for their antioxidant activities. Several experimental methods were used in the study, such as instrumental analysis (UV, Raman, and FT-IR spectroscopy) and in vitro antioxidant assays (FRAP and DPPH).

Based on the FRAP and DPPH assays, the results showed that EO had far greater antioxidant activity than CG. Furthermore, EO's ethanol extract exhibited higher antioxidant activity than its water solution, while CG's antioxidant activity was the opposite. UV spectral analysis showed that EO and CG had separate wave peaks, with phenolic compound signature peaks seen at 290 nm for EO and 270 nm for CG. Notably, phenolic compounds were found in larger concentrations in the ethanol extract of EO than in its water extract; for CG, the reverse trend was noted. The UV spectrum examination of the diluted samples provided more evidence in favor of these conclusions.

Further information about the chemical makeup of the extracts was obtained using FT-IR and Raman spectroscopy. The FT-IR spectra showed the presence of hydroxyl, carbonyl, and aromatic groups in the extracts, further validating the existence of phenolic compounds. The Raman spectra showed characteristic peaks associated with phenolic and flavonoid chemicals.

In conclusion, this study showed that both EO and CG have antioxidant activity, with EO having greater activity than CG. The presence of phenolic chemicals, which were more prevalent in the ethanol extract than the water extract, was thought to be responsible for the antioxidant action of EO. These results point to the possibility of developing EO and CG as naturally occurring antioxidant agents. In addition, we concentrate on increasing the sample size by include TCMs with antioxidant activity that have the potential to be effective anti-inflammatory medicines, such as *Bolbostemma paniculatum (Maxim.) Franquet* (BP) and *Sargentodoxa cuneata (Oliv.) Rehd. et Wils.* (SC). To pinpoint the primary bioactive substances causing the detected antioxidant activity and assess their possible therapeutic uses in a range of illnesses linked to inflammation and oxidative stress, more research is necessary.