ABSTRACT:

This study is designed for the evaluation of antimicrobial activity of the plant material of *C. sativa* that may be used in different medicinal applications. Ultra-sonicated assisted extraction (UAE) was performed where the plant extracts were dissolved in ethanol solvent with water in different fractions ranging from 20% ethanolic, 40% ethanolic, 60% ethanolic, 80% ethanolic and 100% ethanolic. The highest extract yield of 6.63±0.1 were obtained from the 80% concentration of *C. sativa*. The highest total phenolic content was obtained as 62.70±0.9 mg/GAE/g DE from the 80% concentration of the ethanolic extract of *C. sativa*. While the highest flavonoid contents obtained i.e., 24.10±1.0 mg rutin equivalent per gram of dry extract from the 60% ethanolic fraction of *C. sativa*. All of the ethanolic extracts of *C. sativa* exhibited significant antioxidant power activity and 2-diphenyl-1-picrylhydrazyl (DPPH) activity, respectively. The IC50 value for 60% ethanolic extract of *C. sativa* to inhibit DPPH activity was 82.79±0.3 µ g/m L. The statistical analysis indicated that the values of extract yields, antioxidant activities were significantly higher for 60% ethanolic extract ($\rho<0.05$).

The results showed highest antioxidant power in 60% extracts with a value of 91.06 ± 1.0 mg ASE/g PE. Due to high antioxidant properties of 60% ethanolic extracts, it was therefore analyzed through High Performance Liquid Chromatography (HPLC). The peaks were obtained from HPLC analysis which were then compared with the literature. The peaks showed seven potent compounds that are psychologically active including gallic acid, ascorbic acid, caffeic acid, corilagin, rutin, kaempferol and epicatechin