

## ANTI-MICROBIAL PROPERTIES AND MADE TEA QUALITY OF ORGANIC VS. CONVENTIONAL TEAS OF SRI LANKA

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Ceylon tea with inherently unique characteristics are grown in six major regions in Sri Lanka namely; *Dimbula, Nuwara-eliya, Udapussellawa, Southern, Uva* and *Kandy* under conventional and organic management systems. Organic tea, produced in absence of synthesized chemicals is hypothesised to have better made tea quality and anti-microbial (anti-fungal and anti-bacterial) properties over conventional tea. Present research assessed the effects of tea production system and their growing region on quality parameters, anti-bacterial and anti-fungal properties of made tea. Two tea estates each for organically certified and conventional were randomly selected from each tea growing regions excluding *Nuwara-eliya*. Freshly harvested leaf samples of each estate were manufactured into CTC black tea using a miniature system. Infused tea and tea liquor characteristics were assessed using a sensory evaluation. Anti-bacterial and anti-fungal properties were assessed against disease causing bacteria and fungi namely; *Escherichia coli* ATCC 25922 and *Aspergillus niger* using disk diffusion technique. Aroma and the colour of the infused tea were significant ( $p < 0.05$ ) among growing regions and among the production system, where organic tea showed a greater aroma and a colour. Both production system and growing regions showed a significant difference ( $p < 0.05$ ) on colour, aroma and the overall acceptability of tea liquor. Tea growing regions resulted no effect ( $p > 0.05$ ) on the flavour profile and the liquor strength. Yet, organic tea showed a better flavour profile and liquor strength than conventional tea. Both anti-bacterial and anti-fungal properties were significantly different ( $p < 0.05$ ) among tea production system and the growing region, where organic tea showed higher anti-bacterial and anti-fungal properties than conventional tea. Southern tea had greater anti-bacterial and anti-fungal properties, where it was the lowest in *Uva* region. In conclusion, organic teas have better anti-microbial properties and made tea quality over conventional teas.

**Keywords:** Anti-bacterial, Anti-fungal, Conventional tea, Organic tea, Tea quality