



ORIGINAL ARTICLE

Biochemical and molecular analysis of *Camellia sinensis* (L.) O. Kuntze tea from the selected P/11/15 clone



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Gene expression analysis

Abstract Green tea is one of the most important beverages consumed across the world and it possesses various phytotherapeutics. Polyphenol oxidase (PPO) activity, total polyphenols, catechins, amino acid content and enzymatic antioxidants are considered to be potential parameters in tea characterization. P/11/15 clone (*Camellia sinensis* (L) O. Kuntze) was chosen to analyze the biochemical characterization and to analyze the gene expression pattern. The selected P/11/15 clone (*C. sinensis* (L) O. Kuntze) possess potent Polyphenol oxidase (49.62 U/mg of protein), sufficient catechin (20.75%), Polyphenol (20.01%), Peroxidase (450.08 μM of O_2 formed $\text{min}^{-1} \text{g}^{-1}$ dry weight), Catalase (1.20 μM H_2O_2 reduced $\text{min}^{-1} \text{mg}^{-1}$ protein) and Super Oxide Dismutase (45.11 U/mg proteins). Flavonoid gene expression reveals ANR (1.66%) and F3H (1.02%) were up regulated in the selected P/11/15 clone. The results obtained suggest that P/11/15 clone showed adequate enzyme levels, thus an increased antioxidant activity.

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1. Introduction

The tea crop shoots (apical bud and two terminal leaves) are harvested for tea manufacturing [1]. Two types of tea are

manufactured in India viz., CTC (crush, tear and curl) and orthodox depending time of the fermentation. The nature of plucked tea leaves decides the biochemical characteristic which in turn influences the quality of the black tea [2]. The tea crop shoots possess many biochemical constituents, namely, phenolic components, alkaloids, vitamins, enzymes, crude fiber, proteins, lipids and carbohydrates [3,4]. Natural substances, which are presented in plants, help to treat a

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