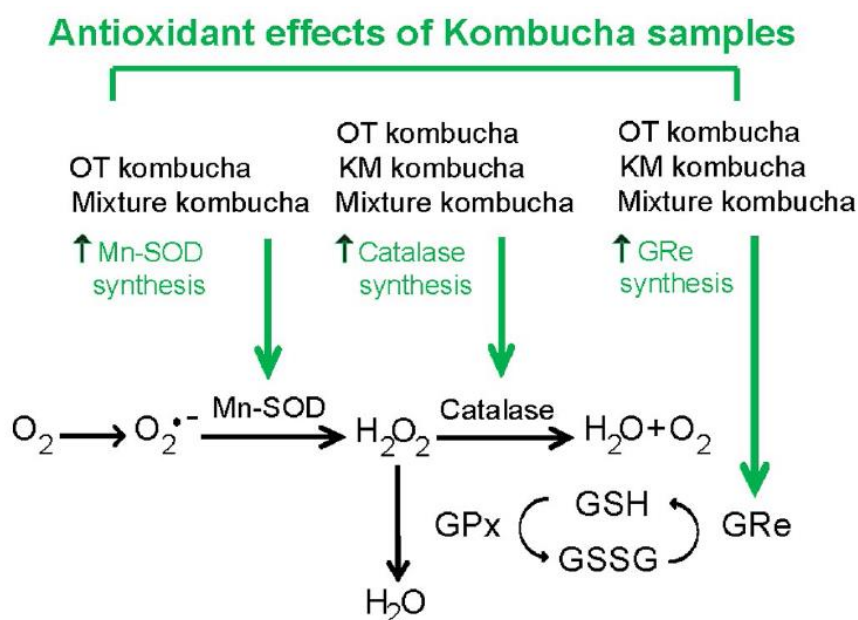


## Characteristics and upregulation of antioxidant enzymes of kitchen mint and oolong tea kombucha beverages

Kombucha is a healthy traditional beverage which is made by fermenting products with a symbiotic culture of acetic acid bacteria and yeasts. In present study, leaves of kitchen mint (*Mentha cordifolia* Opiz. Ex Fresen) and leaves of oolong tea (*Camellia sinensis*) were fermented in kombucha formula. After fermentation, titratable acidity contents and ethanol of kitchen mint, oolong tea, and mixtures of oolong tea and kitchen mint kombucha samples gradually increased with a period of fermentation time. At day 14 of fermentation, phenolic compounds and flavonoids were increased in all kombucha samples. The numbers of acetic acid bacteria and yeast in kombucha had gradually raised during 7-14 days of fermentation. DPPH and ABTS scavenging activities of these kombucha increased over a period of fermentation time and shown the highest antioxidant capacity on day 14 of fermentation. In addition, all kombucha samples exhibited antioxidant effects by attenuating H<sub>2</sub>O<sub>2</sub>-induced ROS production, increasing mRNA expression of catalase, glutathione reductase (GRe), and Mn-SOD, and inducing GRe enzymatic activity in HEK-293 cells as shown in figure below.



### Schematic diagram representing the antioxidant effects of kombucha samples

Kombucha beverages from oolong tea and kitchen mint exhibited the antioxidant effects though the upregulation of antioxidant enzyme synthesis such as Mn-SOD, catalase, GRe and GRe enzymatic activity in HEK-293 cells.

### Reference:

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