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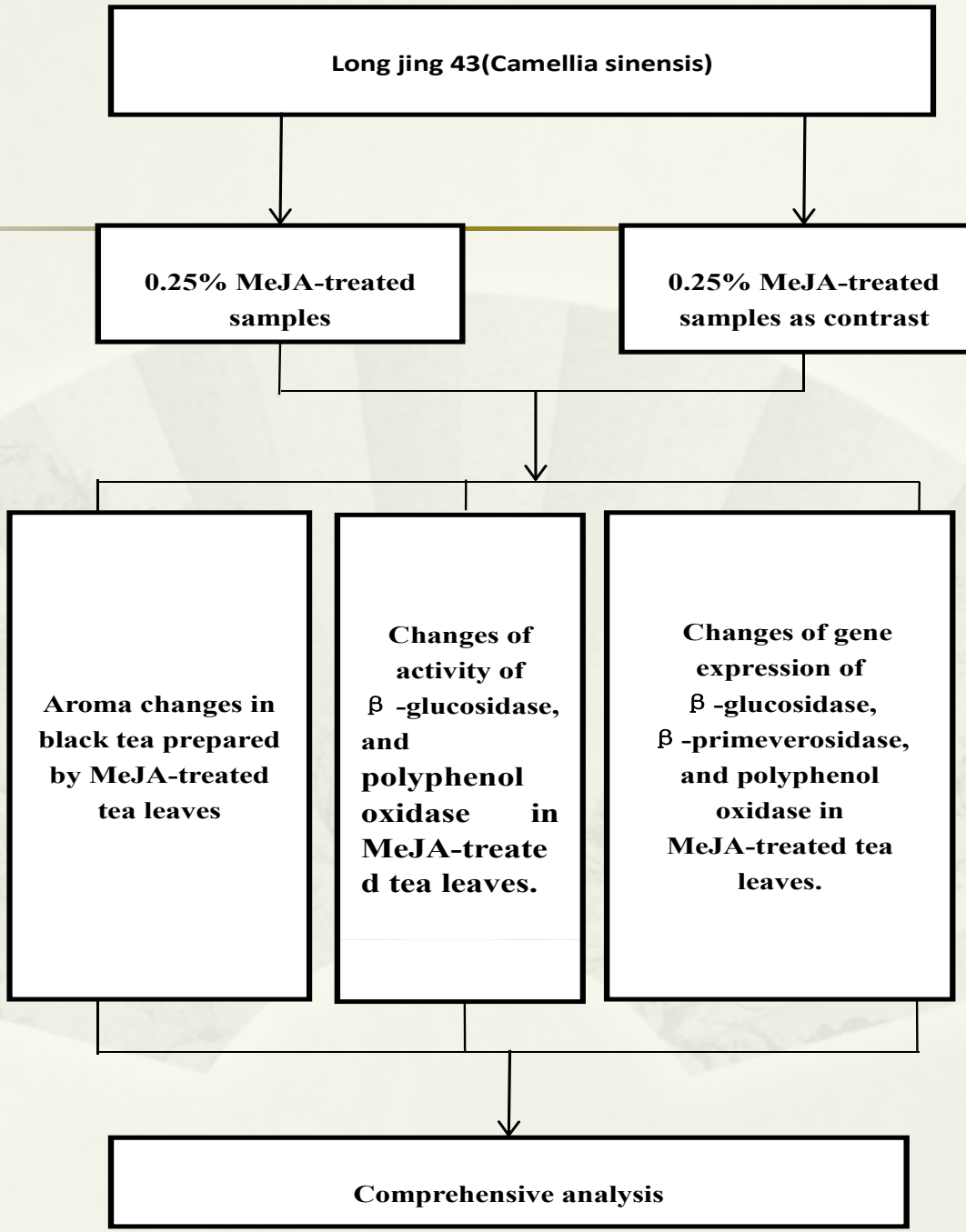
Aroma changes of black tea prepared from methyl jasmonate treated tea plants

Key words: Aroma, Black tea, MeJA, HS-SPME, GC-MS, GC-O, Gene expression

Method


Long jing 43(Camellia sinensis)
0.25% MeJA-treated samples
0.25% MeJA-treated samples as contrast
Aroma changes in black tea prepared by MeJA-treated tea leaves
Changes of activity of β -glucosidase, and polyphenol oxidase in MeJA-treated tea leaves.
Changes of gene expression of β -glucosidase, β -primeverosidase, and polyphenol oxidase in MeJA-treated tea leaves.
Comprehensive analysis

Results

- Forty-five volatile compounds were identified through HS-SPME-GC-MS.
- The results revealed higher levels of terpene alcohols and hexenyl ester in addition to several 3 newly induced components, including copaene, cubenol and indole, in the MeJA-treated black tea compared with untreated teas.

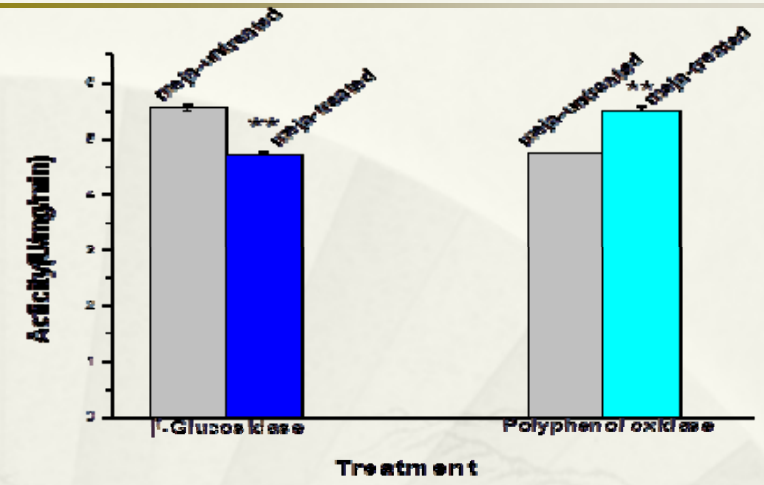
Results

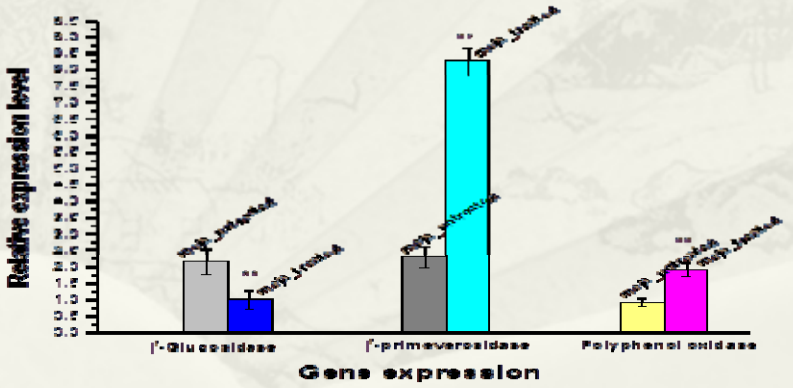
Quality improvement in made black tea prepared with MeJA-treated tea leaves

Tea samples	Treatments	Remarks	Score
Black Tea	MeJA-untreated（CK）	Sweet aroma	88.7±0.5
	MeJA-treated	Honey-sweet aroma	91.7±1.5*

Results

- Two enzyme activities changed after the MeJA treatment.
- Expression of three genes also changed after treatment.





Conclusion

- MeJA could affect the expression of certain genes that modulate the relevant enzyme activity, resulting in increased free terpene alcohol aromas.
- The sensory quality of tea aroma was clearly improved.
- This study could provide a theoretical basis and technical support for using an exogenous inducer to enhance aroma quality and developing a new flavored black tea..