Cite this as: Mei-lin CUI, Huan-yi YANG, Guo-qing HE, 2015. Submerged fermentation production and characterization of intracellular triterpenoids from Ganoderma lucidum using HPLC-ESI-MS. *Journal of Zhejiang University-Science B (Biomedicine & Biotechnology)*, **16**(12):998-1010. [doi:10.1631/jzus.B1500147]

Submerged Fermentation Production and Characterization of Intracellular Triterpenoids from *Ganoderma lucidum* using HPLC-ESI-MS

Key words: ***Ganoderma lucidum***, **Response surface methodology, Wort, Ganoderic acids, HPLC-ESI-MS**

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Research Summary



1

Enhancing the production of intracellular triterpenoids from *Ganoderma lucidum* by RSM

(suitable carbon source and its concentration; suitable nitrogen source and its concentration; pH)

2

Characterization of its major ganoderic acids using HPLC-ESI-MS



Innovation points

- Dry barely has abundant carbohydrate and other nutriment; besides, it is low cost, abundantly available, and conducive to the cultivation of microorganisms and industrial production.

This is the first time wort has been used as the sole carbon source for the growth of *G. lucidum* to increase intracellular triterpenoids production.

- After RSM optimization, the mycelia biomass and IT production could reach maximum, and were **1.87 g/100 mL and 93.21 mg/100 mL**, respectively, using wort **4.10%, yeast extract 1.89% and pH 5.40**

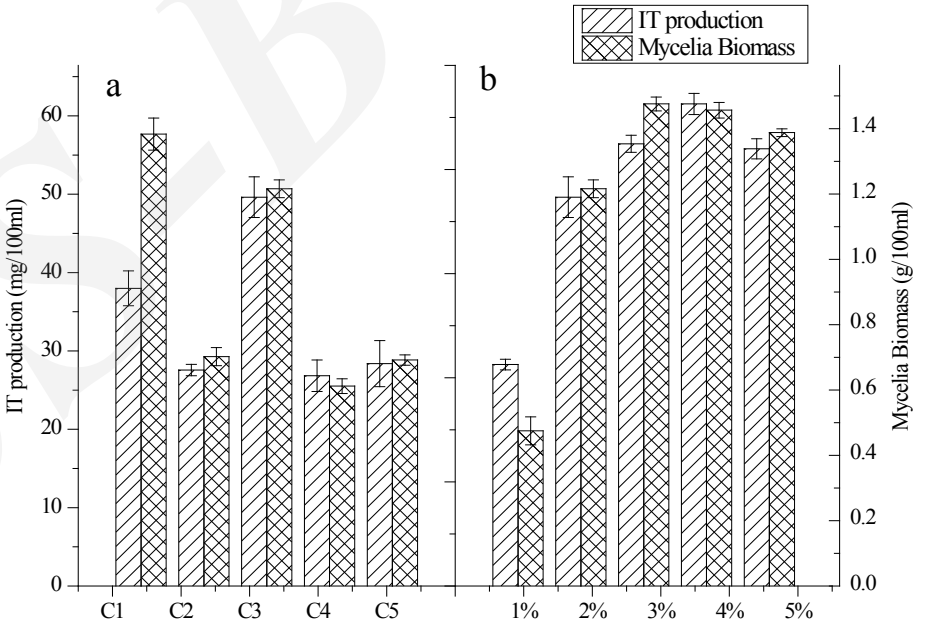


Fig.1 Effect of initial carbon source (a) and the concentration of the suitable carbon source (b) on mycelia growth and IT production in shake flask culture of *G. lucidum*.
(glucose, C1; corn powder extract, C2; wort, C3; sucrose, C4; and soluble starch, C5)

Innovation points

10 possible ganoderic acids were identified from the triterpenoid extract using HPLC-MS^n with the elimination of H_2O and CO_2, as well as cleavage of the D-ring.

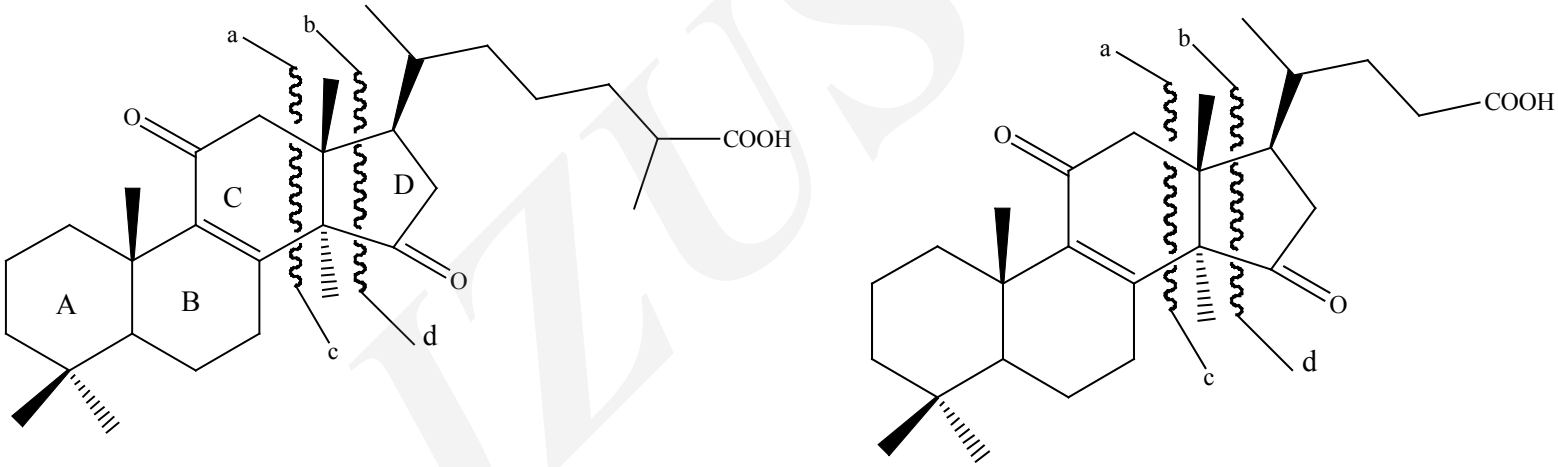


Fig.5 Characteristic fragmention of ganoderic acids

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