Corncob hydrolysate, highly efficient substrate of submerged fermentation for *monascus* pigment production

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**Abstract**

*Monascus* pigment is traditionally produced by *Monascus* fermentation employing rice powder or glucose as the culture substrate. By submerged fermentation, *Monascus* pigment yield would be more stable and the accompanied toxic byproduct-citrinin could be controlled and removed more easily. To reduce the cost of *Monascus* submerged fermentation, the feasibility of corncob hydrolysate as an alternative substrate was investigated. Results showed that, compared to the traditional glucose medium, corncob hydrolysate medium had an equal pigment yield without stimulating accumulations of the toxic citrinin. Furthermore, the corncob hydrolysate medium and cultivation were optimized to enhance pigment productions but depress synthesises of the toxic citrinin. When *Monascus* was cultured under dark condition and caprylic acid was added into the medium, the pigment was increased to 25.81±0.83 UA<sub>500</sub>/mL, higher than 24.04±0.97 UA<sub>500</sub>/mL of the glucose medium and previously reported yields in *Monascus* submerged fermentation based on the same yield unit, and the toxic citrinin was decreased to 26.2±1.9 µg/L, significantly lower than 44.3±2.2 µg/L of the glucose control and that reported in publications. In this study, corncob hydrolysate was proved as safe and highly efficient alternative substrate of submerged fermentation for *Monascus* pigment productions, which showed significant advantages than the traditional glucose substrate.

**Biography**

Zhongxin Zhou is now a post-doctorate researcher of State Key Laboratory of Bioreactor Engineering in East China University of Science and Technology (ECUST) and he has completed his PhD at ECUST in 2012. He has published 6 papers in reputed journals related to bioprocess and antimicrobials. His studies project are being financially supported by the National Natural Science Foundation of China (Nos. 21204020) and the China Postdoctoral Science Foundation (Nos. 2013M530184).