Effects of growth condition to conidial production of Nomuraea rileyi by two-stage fermentation

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ABSTRACT

Nomuraea rileyi has been reported that it is able to infect more than 30 species of lepidopterous pests and it makes the larva of several noctuid pests cause high mortality. Thus, it has great potential to be a microbial control agent. The purpose of this research was studying the effects of growth condition on conidia production of Nomuraea rileyi by using two-stage fermentation. 20 mL nitrogen source (80% V8 juice and 0.6% C.S.P.) was added to liquid culture at day 5, and then liquid culture was transfered to solid substrate at day 6. For another ten days' fermentation, the production of conidia was 6.97 ×109 conidia/g-dry material. Effect of addition of surfactant, the total wet addition was found to have the best production on both mycelia cell concentration and conidia concentration with 0.0453 g/mL and 4.89×109 conidia/g-dry material, respectively. In this study, we found that flask with cotton plug (using 4.8g cotton as the plug in flask bottle neck with I.D. 32mm) had better fungus growth and conidia production than flask with rubber plug (with a hole of I.D. 4mm with 0.25g cotton), and the best production on both mycelia cell concentration and conidia concentration with 0.03 g/mL and 1.11×1010 conidia/g-dry material, respectively. Furthermore, addition of 1% chitosan to product of conidia (5.69×109 conidia/g-dry material) was better than others, but the is high production was not favorite the mortality (45%±3.1%) of S. exigua.

Keywords : two-stage fermentation, Nomuraea rileyi, conidia, chitosan

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