Wide Spread Phyto Hormonal Activity among Natural Yeasts

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Short Communication

Yeast cells was incubated as the initial inoculum in 15ml vials with 10ml of the nutrient medium on a shaker incubator at 20 °C for 4 days, then transferred 100ml. Accrued culture in microbiological 250ml mattresses (Greiner) with 50ml nutrient medium and incubated under the same conditions for 10 days [2].

The 137 strains was investigated for the presence of 3-indoleacetic acid in the culture broth, 76 strains - for the presence of zeatin and 50 strains for the presence of gibberellic acid. 93% of the strains are able to synthesize IAA, including 88% among ascomycetous, among basidiomycetous - 95%. The 55% of the strains can synthesize zeatin, among ascomycetous - 36%, among basidiomycetous - 65%. Gibberellin synthesized 40% of the strains. Among basidiomycetous 36% of strain is active, ascomycetous - 44%. 8 strains were able to synthesize all three hormones. Member of genus Aureobasidium, Sporobolomyces, Taphrina and Metschnikowia were among them. These yeasts belong to epiphytic micororganisms.

Average production of auxin was 605,6mkg/g wet biomass by studied yeast. The highest values of IAA concentration in the culture liquid were detected for strains Metschnikowia pulcherrima - 7990,4mkg/g wet biomass, which corresponds to 60,9, and based on the amount of culture fluid, 53269mkg/l. Metschnikowia pulherrima is typical inhabitant of sugary plant substrates.

Average production of zeatin was 88.5ng/g wet weight. Maximum values was fixed for strains Sporobolomyces roseus, 881.21ng/g wet biomass, which corresponds to 8850ng/g of dry cell biomass or 5874.7ng/l culture medium. Sporobolomyces roseus form ballistoconidia and often occurs on plants surface.

Average production of gibberellic acid by yeast was 29.5ng/g wet biomass. The maximum values recorded for strains Metschnikowia pulcherrima, 182.3ng/g wet biomass, which
corresponds to 1215.3ng/g dry cell biomass, and 1840.2ng/l culture broth.

It is possible to make the final conclusion that the ability to produce phyto hormone is widespread among yeasts, is the dependence of strains and fluctuates widely. The ability to synthesize auxin and gibberellin distributed equally among the ascomycetous and basidiomycetous, but the zeatin is synthesized with greater frequency by basidiomycetous yeasts.

References


