

## **RATIONALE FOR OPTIMUM INACTIVATION METHODS FUNGAL CELLS CANDIDA ALBICANS AND CANDIDA TROPICALIS**

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Number of patients with candidiasis in humans and animals has increased dramatically in recent years. Candidiasis is caused by yeast fungi *Candida*. The increase in the incidence of candidiasis associated with irrational use of antibiotics, hormones, steroids, immunosuppressants and other drugs. Candidiasis is manifested in different forms. The greatest danger is posed by systemic and visceral candidiasis. These forms of candidiasis are difficult to treat with modern medication. Urgent need is to develop a vaccine based on the fungi of the genus *Candida* for the prevention and treatment of *Candida* infections.

This article was researched physical, chemical and physico-chemical methods of inactivation of the fungal cell *Candida albicans* and *Candida tropicalis*. The study used a suspension with a concentration  $8 \times 10^8$ - $8 \times 10^9$  in 1 ml of fungi *Candida albicans* strain CCM 335-867 and  $8 \times 10^8$ - $8 \times 10^9$  in 1 ml of fungi *Candida tropicalis* strain ATTC 20336. Physical methods described below. Cells treated separately mushrooms temperature of  $50 \pm 2$  °C for 1 hour in a volume of 100 ml with constant stirring with a stirrer speed of 100 rev/min. The chemical method described below. Formalin was added to the suspensions at a concentration of 40%. The final concentration of formaldehyde in the suspensions was 0.5%. Stirred stirrer speed of 100 rev/min for 5 min and the suspension was kept overnight at  $25 \pm 2$  °C. Physico-chemical method is to combine the above methods.

On Sabouraud nutrient media after cultivation of cells inactivated by natural fungi were found growing colonies of fungi *Candida albicans* 12-17 and 10 *Candida tropicalis* - 15 colony forming units and after chemical methods - *Candida albicans* 9-14 and *Candida tropicalis* 7-12 colony forming units and after physical and chemical methods - have been found growing colonies of fungi. It is likely that the temperature of  $50 \pm 2$  °C is not sufficient to stop cell activity of fungi, and the use of higher temperatures may lead to the weakening or loss of immunogenic properties of fungi. For inactivation of fungi by chemical method is necessary to increase the concentration of formalin, but it can weaken the immunogenic properties of fungi.

According to the obtained results, it was found that the physico-chemical method provides complete inactivation of cells and fungi *Candida albicans* *Candida tropicalis*.