

POTENTIALITIES OF SOME SYNTHESIZED METALLIC COMPLEXES ON BIOGENIC AMINES FORMATION BY BACTERIA

Ismail*, I.; H. El-Fadaly*; A. F. Abdel-Aziz**; M. Kassem* and M. El-Hersh
Microbiology Dept.*, Fac. of Agric., and Chemistry Dept.**, Fac. of Sci., Mansoura Univ., Egypt

ABSTRACT

Meat, fish and cheese samples were collected and analyzed from microbiological point of view. Four bacterial isolates were selected according to their decarboxylase activities and identified as *E. cloacae* Chs₂, *E. aerogenes* CK₂, *E. aerogenes* CK₁, *B. pumilus* Chs₁. Four synthesized metallic complexes were tested against biogenic amines-producing bacteria. These complexes were [Cu(HMPyPT)₂ Cl₂ · 2 H₂O] · H₂O, [Au (HMPyPT)₃ Cl₃ ETOH], [Zn(HMPyPT) Cl₂ (Py)₃] and [P + (HMPyPT)₂ Cl₄ ETOH].

Obtained data showed different effectiveness of used metals on tested four bacterial strains. *In vitro* the bacterium *B. pumilus* showed to be more sensitive to examined complexes. Gold complex was more effective followed by copper complex, but zinc complex came last in its effect. Opposite results were found *in vivo* since copper complex was most effective. Obtained data showed that copper complex showed high inhibitory effect to the bacterium *B. pumilus in vivo*, in which the relative decrease in bacterial number was 93.9 compared to gold complex that was 61.5 after 24 hr incubation period at 30°C. It is also found that the relative increase in histamine was found to be 213.3 by gold complex after 24 hr incubation period at 30°C. Meanwhile, the relative increase of spermidine was found to be 83.9 and 92.4 by gold and copper complexes after 46 hr at 30°C, respectively. In addition, the fold increases of cadareine were 39.16, and 2 by gold and Copper complexes, respectively after 24 hr incubation at 30°C.