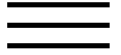


Efficiency of antibiotics and gamma irradiation in eliminating *Streptomyces* strains isolated from paintings of ancient Egyptian tombs.

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Original article

# Efficiency of antibiotics and gamma irradiation in eliminating *Streptomyces* strains isolated from paintings of ancient Egyptian tombs

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### Abstract

Forty-six *Streptomyces* strains were isolated from paintings and stone surfaces from Tell Basta and Tanis tombs (80 km south-east Cairo, Egypt). Eight of these strains were selected to determine their sensitivity against 13 antibiotics. In general, high levels of resistance could be observed. Gentamycin, spiramycin and doxycycline were the most effective antibiotics against the majority of strains under study. Due to the observed antibiotic resistances, gamma irradiation was studied as a possible alternative to inhibit microbial growth. Isolated bacteria were exposed to different doses of gamma

irradiation (5, 10, 15, 20 and 25 kGy). The growth of all *Streptomyces* isolates except *S. canarius* was completely inhibited at 25 kGy. The applied doses of gamma irradiation did not cause any observable alterations or colour changes to pigments and binding media (arabic gum, animal glue and egg-yolk) used in the paintings.



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## Keywords

Azurite; Gamma irradiation; Hematite; Lamp black; Limonite; Malachite; Oserkon II; *Streptomyces*; 16S rRNA gene; Tanis; Tell Basta

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