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King Saud University  
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Botany and Microbiology Department



## **“The Impact Of Gold And Silver Nanoparticles On Bacteria Invading The Blood Stream”**

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**Thesis**

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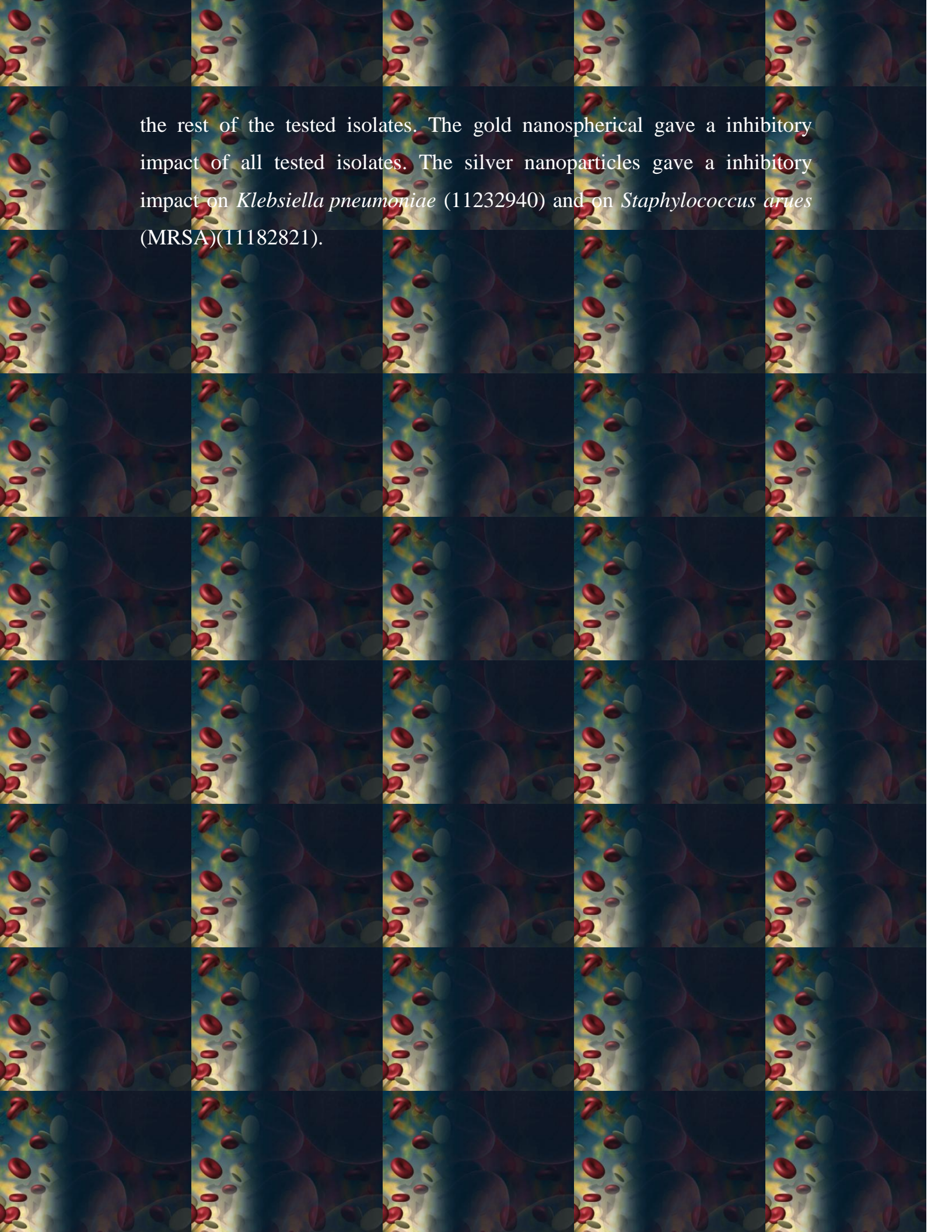
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## Abstract

This study focused on 50 samples were collected from bacteremia patients during 3 months (during the period between May 2009 to July 2009). All samples were isolated from inpatients and out patients departments at Security Forces Hospital in Riyadh, Saudi Arabia.

The objectives of this research were as follows:

- Determine the incidence of bacteremia among males and females, the result showed that the number of males bacterial infection in their bloodstream were more than females, the percentage was (12, 8%, respectively). The results declared that elderly category of age was the highest (32%), compared to the adults and infants categories (26% , 24% respectively), then came the other categories (pediatrics, teenagers) which were statistically equal, (14, 4% respectively). The average of infected people in inpatient Departments (36%) was highest than infected people in outpatient Departments (14%).
- The study showed the ability of nanoparticles for gold and silver, to discourage the growth of tested bacteria.
- This study indicates that the gold nanorod were the best to discourage the growth of tested bacteria, then the gold nanospherical after that the silver nanoparticles.
- Swabs were taken from inhibition zone resulting from the inhibitory effect of gold and silver nanoparticles towards the tested bacteria and re-inoculated on the NA, to discover either the inhibitory or lethal effect for different nanoparticles. The study proved that gold nanorod gave inhibitory effect on *Pseudomonas aeruginosa* (11093627) , *Enterobacter cloacae* (11159053) and *Citro.freundii* (11176991) and (11182565), and gave an lethal effect to

The background of the entire page is a repeating pattern of red blood cells and white blood cells. The red blood cells are depicted as biconcave discs in shades of red and brown, while the white blood cells are larger, spherical, and light-colored. They are scattered across a dark blue background with some yellowish highlights.

the rest of the tested isolates. The gold nanospherical gave a inhibitory impact of all tested isolates. The silver nanoparticles gave a inhibitory impact on *Klebsiella pneumoniae* (11232940) and on *Staphylococcus aureus* (MRSA)(11182821).