

# The Effect of mobile phone radiation on the bacterial fauna in the external ear of healthy adults

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The effect of mobile phone radiation on human health has always been a point of contention. In this study, we investigated the effect of mobile phone radiation on bacteria living in the external ear of healthy adults. Two volunteer groups n=15 based on mobile usage (G1- users) and (G2- non-users) have been recruited. Samples collected from both ears were serially diluted and plated for total colony counts and plated in selective media to identify species through gram staining and biochemical tests and also to manually count number of colonies. Total colony counts and counts for each of the species in the individuals of G1 and G2 were statistically compared using t test ( $p < 0.05$ ), to identify possible variations in their population dynamics. Three bacterial populations *Staphylococcus aureus*, *Staphylococcus epidermidis*, *E-coli* were identified in the external ear in G1&2. *Pseudomonas aeruginosa* was found only in G1. Total colony counts were larger in mobile users compared to non-users, indicating a larger density of bacteria living in the external ear. No significant difference was observed in colony counts of any of the other species in G1&2. Therefore, we found no sufficient evidence to conclude that mobile phone usage has an effect on the population dynamics of bacteria in the external ear of healthy adults. However, mobile usage appears to increase the spread of harmful bacterial species. A further study with larger sample size could be carried out to ascertain whether the observations made in this study were conclusive.

**Keywords:** mobile phone, external ear, bacteria