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Isolation of Methicillin Resistant *Staphylococcus aureus* (MRSA) from *Rattus rattus* from Adhamiyah district in Baghdad governorate

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Abstract
This study focused on the isolation of methicillin resistance *Staphylococcus aureus* (MRSA) from black rats (*Rattus rattus*) from Adhamiyah district. A Total of 30 black rats (*Rattus rattus*) used in this study. Specimens from the upper respiratory tract, feces, and urine were collected in aseptic conditions for bacteriological culture. Standard diagnostic methods were used to isolate Gram-positive (+ve) bacteria. All samples were cultured on mannitol agar, a differential media for *staphylococci* (*Staph*), and incubated at 37°C for 24 hours. Gram stain was achieved to identify Staph bacteria. Also, the biochemical tests and the API Staph system were applied for identification of S*taphylococcus aureus*. The results of this study showed that twenty-eight rats out of thirty were harbored *Staphylococci*. In this study, four samples of upper pharyngeal swab were negative for *Staphylococcus aureus*, while the other 26 samples were positive. In urine samples, 11 samples were negative, and the rest (19 samples) were positive for *Staphylococcus aureus*. All examined rats showed no *Staph* growth in fecal samples. The isolated staphylococci distributed as coagulase-negative (*S. xylosus*, 2 (3.57); *S. epidermidis*, 6 (10.71); and *S. sciuri*, 3 (5.35), and coagulase positive (*S. aureus*, 45). Out of these forty-five isolates, 26 (45.42%) were from the deep pharyngeal swap and the rest 19 (33.92 %) were isolated from urine. The occurrence of MRSA was investigated by disc diffusion method. The results indicated that out of the 45 isolates, 42 (93.9%) and 3 (6.1%) were sensitive and resistance, respectively, to the Methicillin. All MRSA was obtained from urine. However, no *Staphylococci* were isolated from feces. In conclusion, this study approved that MRSA isolated from black rat (*Rattus rattus*) from Adhamiyah district could play a crucial role in spreading diseases to human and animal via dried urine, which is un-visible by the naked eyes. Consequently, the authors recommend another future studies to investigate in details the actual role of black rats in the transmission of infections to man and another animal.

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