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Prevalence and the effect of plant extracts on community associated methicillin resistant *Staphylococcus aureus* in Owerri, Imo State, Nigeria

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ABSTRACT:

The prevalence of Methicillin resistant *Staphylococcus aureus* (MRSA) among apparently healthy inhabitants of Eziobodo Community and Students of Federal University of Technology Owerri (FUTO), Imo State, Nigeria was studied. The work further ascertained the antibacterial activities of medicinal plants including *Azadirachta indica*, *Pterocarpus mildbraedii, Garcinia kola, Phyllanthus amarus and Vernonia amygdalina* against the MRSA isolates. A total of two hundred nasal swab specimens were randomly collected from the participants. The Kirby-Bauer technique was used to determine the susceptibility pattern of the isolates to Vancomycin (5µg), Ciprofloxacin (5µg), Ceftriaxone (30µg), Oxacillin (5µg), Methicillin (10µg) and Erythromycin (15µg). The antibacterial properties of the ethanolic plant extracts were determined using the agar well diffusion technique. A total of 181 (90.5%) and 141 (70.5%) of the nasal swab samples, yielded *Staphylococcus* species and *Staphylococcus aureus* respectively. The antibiotic sensitivity screening revealed that 38 (27%) of the *S. aureus* isolates were methicillin resistant. The MRSA isolates also exhibited the highest resistance to vancomycin and the least to ceftriaxone. Furthermore, the result showed that crude ethanolic extracts of all tested plant extracts except *Pterocarpus mildbraedii* exhibited antibacterial activities against the MRSA isolates. Phytochemical components such as Alkaloids, Tannins, Glycosides, Saponins, Flavonoids, Terpenoids, Phlobatannins, Steroids and Anthraquinones were detected in the plant materials in varying proportions. This study unveils a relatively high occurrence of MRSA among the study population which could be a risk factor for infection with MRSA. These plant extracts could also serve as potential sources of therapy for the treatment of MRSA infections.

Keywords:

Antibiotic resistance, *Staphylococcus aureus*, Methicillin, Plant extracts, Isolates.