

Isolation and Molecular Characterization of Salmonella Serovars Distributed in Benue State, Nigeria

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Abstract

Salmonella serovars distribution in Benue State was evaluated using standard microbiological techniques. Eighteen isolates of varying *Salmonella* species were obtained from four hundred and twenty stool samples collected from Patients in the three senatorial districts sampled. Four distinct serovars of *S. enterica* and one *S. bongori*, were identified. *S. enterica* Typhimurium was 6 (33.33%) and prevalence of 1.43%. *S. enterica* Typhi and *S. enterica* Heidelberg had 2 cases each, whereas *S. enterica* Agona, *S. enterica* Paratyphi B, *S. enterica* Huaian and *S. bongori* had a lone case each. Significant association was established between occurrence of *Salmonella* infection and causative serovars ($\chi^2 = 57.93, P < 0.05$). Molecular characterization results showed that the dendrogram formed 2 main clusters with two divergent *Salmonella* strains. The first sub cluster had four strains isolated from different locations: *S. enterica* Heidelberg-MG663473.1 from Gboko; *S. enterica* Typhimurium-JQ228518.1 from Katsina-Ala; *S. enterica* Typhimurium-CP014981 from Makurdi and *S. enterica* Typhimurium-CP023166.1 from Kwande. Seventy-five percent (75%) of strains in this group were Typhimurium serovars. *S. enterica* Typhimurium-CP023166.1 isolated from Kwande was a unique strain that showed wider genetic variability but related to the check strain (*S. bongori* - KU060291.1). The second sub cluster consisted of *S. enterica* Paratyphi B-JQ694526.1; *S. enterica* Heidelberg-CP019176.1; *S. enterica* Typhimurium-CP024619.1 and *S. bongori*-FR877557.1. The second main cluster had 8 strains consisting of 4 enteritidis, 2 Typhi, 1 Huaian and 1 Typhimurium from all locations except Gboko. *S. enterica* Typhimurium-MH196335.1 was divergent from the main clusters of the check strain. *S. enterica* serovar Agona strain 392869-2 was unique and is related with enteritidis strain. It is established that diverse salmonella serovars exist and cause infections in Benue State.

Keywords : Salmonella Serovars Salmonellosis Endemic Symptomatic