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Antibiotic resistance of *Staphylococcus aureus* from immunocompromised children's oral cavity

Fatima Zahra Benatia[1], Zahira Zakia Baba Ahmed-Kazi Tani[1], Kendil Wafa[1], Zahia Boucherit-Otmani[1]
[1]. Laboratory Antibiotics Antifungals: Physico-chemical, synthesis and biological activity (LapSab),
[1] B.P.119.13000,Tlemcen – Algeria
***E-mail: Benatia.fatimazahra2508@gmail.com**

01. Introduction

***Staphylococcus aureus* (*S. aureus*) is a significant pathogen that can cause infections in various parts of the body, including the oral cavity. In immunocompromised children, the risk of infections, including those caused by S. aureus, is heightened due to factors such as neutropenia and the use of immunosuppressive drugs. The aim of this study is to evaluate the antibiotic resistance and biofilm formation of *Staphylococcus aureus* strains isolated from the oral cavity pediatric patients.**

02. Methodology

Buccal swabs were collected from immunocompromised children, and the samples were analyzed in the laboratory through isolation in selective media followed by purification and identification using standard microbiological methods. The results of identification were confirmed by Vitek. Antibiogram and MIC methods were employed to assess the antibiotic resistance profile of *S. aureus* strains, while biofilm formation was evaluated using the crystal violet staining method.

03. Results & Discussion

Figure01: biofilm formation by *S.aureus* strains (TCP method)

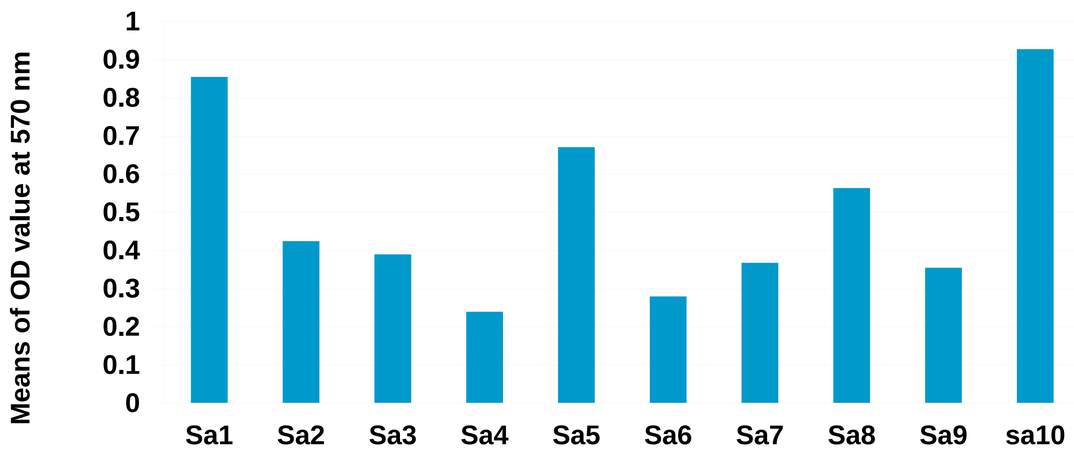

Table01: screening of 10 S.aureus isolates for biofilm formation by TCP method according to (Mathur classification)

Strains	Means of of OD value	Adhernce	Biofilm formation
Sa1	0,855	Strong	Hight
Sa2	0,425	Strong	Hight
Sa3	0,39	Strong	Hight
Sa4	0,24	Strong	Hight
Sa5	0,671	Strong	Hight
Sa6	0,28	Strong	Hight
Sa7	0,368	Strong	Hight
Sa8	0,564	Strong	Hight
Sa9	0,355	Strong	Hight
sa10	0,928	Strong	Hight

Table 02: In vitro susceptibility (MIC) of 10 isolates of S. aureus

Strains / .ATB	Ox ≤0.25, ≥0.5	GN ≤4, ≥16	K	LEV ≤2, ≥8	CD ≤0.5, ≥4	LNZ ≤4, ≥8	Va ≤2, ≥16	TE ≤4, ≥16	FC	RD ≤1, ≥4	SXT ≤2/38, ≥4/76
Sa1	0,5	≤0,5	16	0,25	0,25	2	1	**≥16**	**4**	≤0,03	≤10
Sa2	0,5	≤0,5	≤4	0,25	0,25	2	1	**≥16**	0,5	≤0,03	≤10
Sa3	0,5	≤0,5	≤4	0,25	0,25	2	1	≤1	≤0,5	≤0,03	≤10
Sa4	**≥4**	≤0,5	≤4	0,25	0,25	2	1	≤1	≤0,5	≤0,03	**160**
Sa5	**≥4**	≤0,5	≤4	≤0,12	**≥4**	2	≤0,5	≤1	**8**	≤0,03	≤10
Sa6	**≥4**	≤0,5	≤4	0,25	0,25	2	≤0,5	≤1	≤0,5	≤0,03	**80**
Sa7	≤0,25	≤0,5	≤4	0,25	0,25	2	≤0,5	≤1	≤0,5	≤0,03	≤10
Sa8	0,5	≤0,5	**≥64**	0,25	0,25	2	1	**≥16**	8	≤0,03	≤10
Sa9	0,5	≤0,5	≤4	0,25	0,25	2	2	≤1	≤0,5	≤0,03	≤10
sa10	**≥4**	≤0,5	≤4	**4**	0,25	2	≤0,5	≤1	**8**	≤0,03	**80**

All isolated *S.aureus* strains exhibited resistance to penicillin, while 4 out of 10 were resistant to oxacillin (MIC≥4Ug/mL). Additionally, all 10 strains were found to be sensetive to Rifampicine (MIC≤0,03 Ug/mL),Vancomycine and Linezolide, Furthermore, according to Mathur's classification, all *S. aureus* strains exhibited higher levels of biofilm formation.

04. Conclusion

The study highlights the importance of Understanding the antimicrobial resistance profiles and biofilm formation capabilities of these bacteria to informing treatment strategies and mitigating the risk of infections in this vulnerable population. Further research is necessary to elucidate additional factors influencing antibiotic resistance and to develop targeted interventions to safeguard oral and systemic health in children with compromised immune systems