

Assessment of Contamination by Staphylococcus aureus in Infant Food

Products: Identification and Biofilm-Forming Potential CHERIF ANNTAR Asmaa 1-2, BARKA Mohammed Salih 1-2 and BENAMAR Ibrahim 1-3

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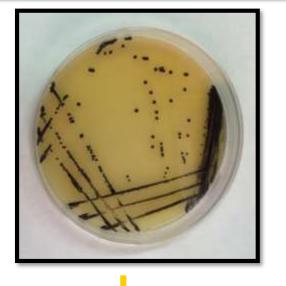
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INTRODUCTION & AIM

Infant feeding represents a critical developmental stage during which exposure to pathogenic microorganisms can pose serious health risks. The WHO recommends exclusive breastfeeding for the first six months, followed by diversified feeding up to 24 months. However, infant food products such as fruit compotes and powdered milk may serve as suitable media for the growth of pathogens, particularly *Staphylococcus aureus*, a foodborne pathogen capable of producing heat-stable enterotoxins and forming biofilms that enhance its persistence in food processing environments. This study aimed to isolate and identify S. aureus from commercial infant foods and evaluate its biofilm-forming ability.

METHOD

RESULTS & DISCUSSION

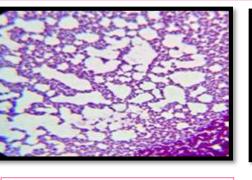


Biochemical

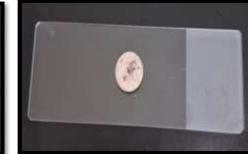
identification reveals

that all strains were:

Microbiological analysis revealed contamination levels of up to 14.36 × 10³ CFU/ml in fruit compotes and 22.45 – 40.09 × 10³ CFU/g in powdered milk.







Cocci Gram +

Catalase +

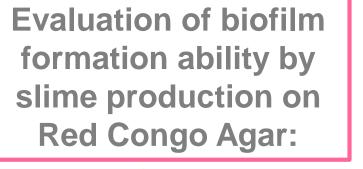
Oxydase -





Coagulase +

Hemolysis +





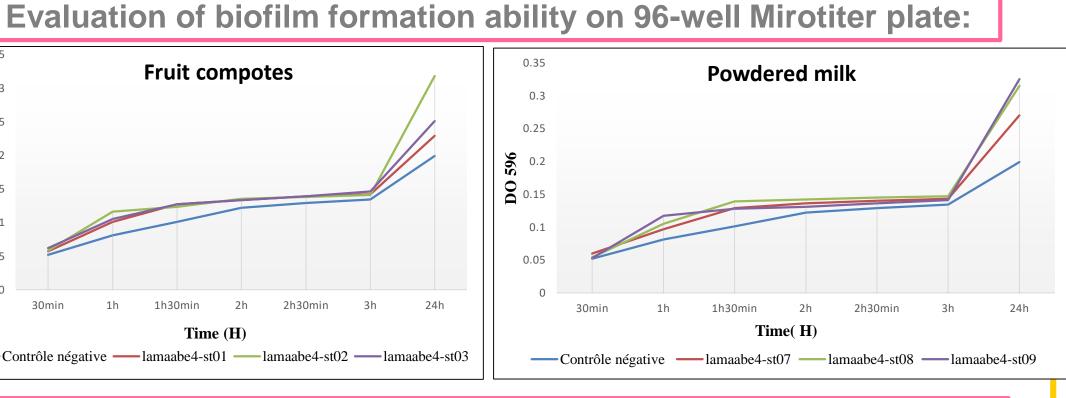
After 24h of incubation at 37°C, all tested strains showed a positive phenotype with black colonies on RCA indication exopolysaccharide production

Selection of Infant food samples: fruit compotes powdered milk **Isolation and biochemical** identification of S.aureus

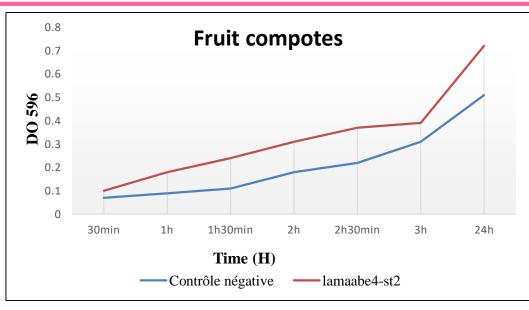
Evaluation of biofilm-forming ability in vitro by crystal violet staining and slime production

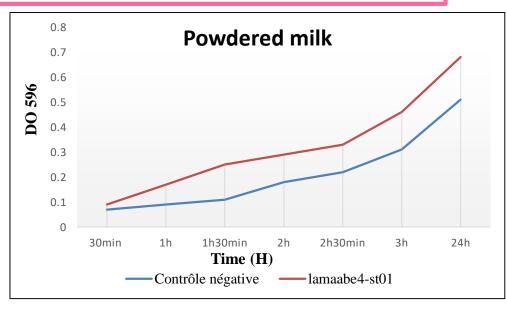
Isolation and biochemical

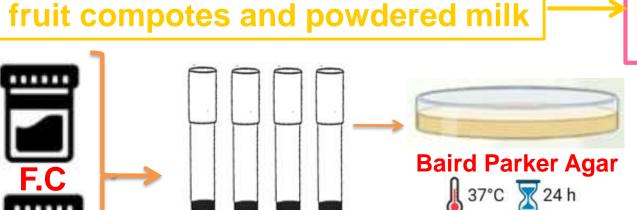
Fruit compotes 0.3 **Q**_{0.15} 0.1 Time (H) — Contrôle négative — lamaabe4-st01 — lamaabe4-st02 — lamaabe4-st03



Evaluation of biofilm formation ability on glass slide:







Selection of Infant food samples:

P.M

BIHB Culture

Biofilm staining

🔀 5 min

identification of S.aureus **Gram staining**

Catalase test **Hemolysis test Coagulase test Evaluation of biofilm-**

Oxydase test

forming ability in vitro

Mirotiter plate **Slime production Red Congo Agar** Suplemented with 0.25% 25°C 1,2, 3 and 24h glucose and fill out the plate **Biofilm formation**

on glass slide **OD** measurerment

Biofilm staining

BIHB Culture

CONCLUSION

These findings underscore the microbiological risk associated with infant foods and highlight importance stringent the hygiene practices, microbial monitoring, and targeted biofilm control food processing environments.



Disolve stained biofilm