

## 115 - DEVELOPMENT OF ELECTROCHEMICAL BIOSENSOR FOR DETECTION OF STAPHYLOCOCCAL ENTEROTOXIN A

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Staphylococcal food poisoning is one of the most prevalent causes of gastroenteritis worldwide, which is caused by the ingestion of food with preformed toxin. Staphylococcal enterotoxins (SEs) are low molecular weight proteins produced by some strains of *Staphylococcus aureus*. These enterotoxins are heat stable, resistant to stomach proteases and stable over a wide range of pH. Nowadays, the methods for detection of these enterotoxins are made by expensive immunological or biochemical kits. In the last decades, special attention has been given on the potential of using biosensors for specific analysis by selective binding the target compounds. In this context, the detection based on biosensor may be a desirable tool due to high sensitivity, specificity, reproducibility and low cost. In this study, were prepared screen-printed electrodes modified with anti-SEA and subsequent blocking by 3% BSA and 500 mM glycine. In the process of modification of the electrode was used the self-assembly monolayer technique (SAM). For this, 10  $\mu\text{L}$  of 5  $\text{mg mL}^{-1}$  protein A was dropped on the electrode. Next step, added 10  $\mu\text{L}$  of 0.5  $\mu\text{g } \mu\text{L}^{-1}$  antibody anti-Staphylococcal enterotoxin A (IgG), BSA 3% or glycine (500 mM), 10  $\mu\text{L}$  of 0.1  $\mu\text{g } \mu\text{L}^{-1}$  enterotoxin staphylococcal A (SEA), 10  $\mu\text{L}$  of antibody anti-staphylococcal enterotoxin conjugated to peroxidase. The solutions were prepared with phosphate buffer (pH 7.0). Each immobilization procedure was realized for one hour with subsequent washes in distilled water. Cyclic voltammetry measures were performed in Potentiostat/Galvanostat Autolab PGSTAT100. The glass cell of 10 mL was used and a conventional system with three electrodes: a platinum auxiliary electrode, a reference electrode of Ag/AgCl saturated with KCl 3 M and a screen-printed electrode as working electrode. The biosensor showed good linearity in phosphate buffer. The cyclic voltammetry demonstrated good stability of biosensor after fifty scans. Preliminary studies indicated that 3% BSA was better blocking agent than 500 mM glycine. The choose of the blocking agent is important for the development of biosensor more sensitive and specific. Until now, the results are very promising for the development of biosensor for detection of staphylococcal enterotoxin in food.

## 116 - ANTIMICROBIAL ACTIVITY OF *ANACARDIUM OCCIDENTALE* LINN.

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**Introduction:** *Anacardium occidentale* L. species native to Brazil, popularly known as cashew, is widely used by people to treat acne, asthma, diabetes, as anti-inflammatory, antioxidant, healing, antimicrobial and treatment of tumors. **Objective:** This study evaluated the antimicrobial activity of extracts from aerial parts of *Anacardium occidentale* on bacteria and fungi. **Methodology:** Ethanol extracts was prepared on leaves and stem bark. The tests were performed by the method of agar diffusion and serial dilution method to determinate the Minimum Bactericidal Concentration (MBC) and Minimum Fungicidal Concentration (MFC) for different microorganisms (ATCC) as *Streptococcus mutans*, *Lactobacillus acidophilus*, *Staphylococcus aureus*, *Methicillin Resistant Staphylococcus aureus* (MRSA), *Pseudomonas aeruginosa*, *Proteus mirabilis*, *Escherichia coli*, *Klebsiella pneumoniae*, *Enterococcus faecalis*, *Streptococcus pyogenes*, *Helicobacter pylori* and *Candida albicans*, using chlorhexidine gluconate 0.12% as positive control. **Results:** Both the extract of the leaves as the stems were effective in inhibiting the growth of *S. aureus*, *P. aeruginosa*, *P. mirabilis*, MRSA, *E. coli*, *K. pneumoniae*, *E. faecalis*, *S. pyogenes* and *Helicobacter pylori*. Cariogenic bacteria *S. mutans* and *L. acidophilus* and fungi *C. albicans* were not sensitive to any extract used. **Conclusion:** The antimicrobial activity of specific



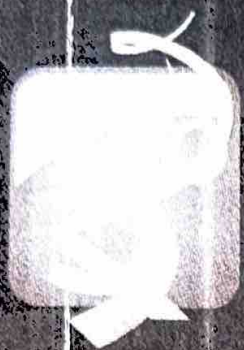
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