Function development for implementing MELATON ITY

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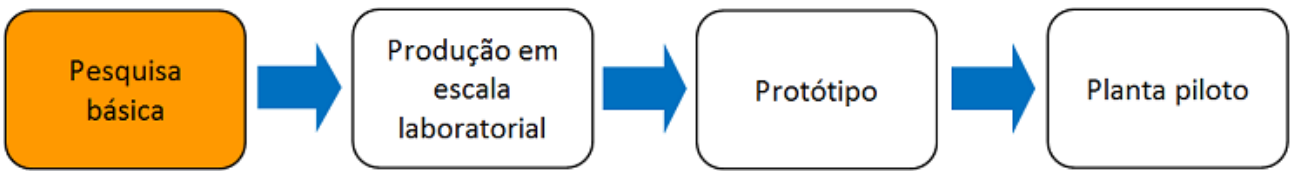
Technology description

This article
Melatonin is a hormone found in most organisms and is one of the oldest biological indicators in nature. Melatonin is the hormone that marks darkness, so in humans it prepares organisms for sleep. Melatonin also has anti-inflammatory function. Their day-to-day production is hampered by the organism's ability to defend itself against certain attacks and restores when the infection is countered.

A number of studies have shown that abnormal levels of melatonin are associated with high blood pressure, type 2 diabetes, depression, insomnia and some cancers such as breast and colorectal cancers. In the case of glioblastoma (brain cancer), tumors that produce melatonin are more aggressive than those that do not. Therefore, the detection and quantification of the serum concentration of this hormone is an important tool in the medical field. Detection of this hormone is usually carried out by ELISA and radioimmunoassay. Although accurate, it is costly and requires specialized time and researchers.

Therefore, it is necessary to develop simpler and more affordable technologies. Electrochemical sensor is a kind of low-cost device, which can realize rapid analysis, simple structure, and has great potential for industrialization. An electrochemical biosensor was developed for the determination and quantification of melatonin by cyclic voltammetry using PANI/PVS film (polyaniline/poly (vinyl sulfonic acid)). The ITO platform was coated with PANI/PVS conductive polymer layer by layer. The biosensor can detect melatonin in the concentration range of 10-4 ~ 5 × 106 mol · L-1. The detection limit was 2.824 x 10-6 mol · L-1. The electrode was stable for continuous determination.



Advantages

It can be used in the field of biotechnology. A company specializing in sensor development.

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