

BIOSENSOR INSTRUMENT FOR ANALYSIS OF TEA POLYPHENOLS

INTRODUCTION

Biosensors have been proved to be a modern analytical tool for the analysis of food, fermentation, dairy, meat, pharmaceutical, chemical, defense, agriculture and environmental samples. Tea taster uses cuppage and mouth feel terms traditionally in tea quality assessment. Hence, estimation of soluble polyphenols while making of tea is important in assessing its quality. Tea biosensors improve the reliability of tea quality assessment.

Versatility of tea polyphenol biosensor

- Tea and coffee industry
- Chocolate and confectionary industry
- Post harvest industry of fruits and vegetables
- Wine industry
- Nutraceuticals
- Fruit juice manufacturing

MARKET POTENTIAL

There is no reports are there that biosensors are used for assessment of quality of tea processing. There a large number of factories and production units are operating in India. Many export oriented factories having great demand for the online and off line analysis of tea quality. Hence the tea quality assessment is very critical to evaluate the grade and quality of tea, biosensor can be solution. The lesser expensive gadget, which can be operated anywhere, will be providing flexible and convenient analysis of the tea. This instrument is programmed in such a manner, which can be used to analysis all green, oolong and black tea. Indian tea industry faced lot of set back in recent years due to lack of quality.

RAW MATERIALS

Biological elements and an electrochemical transducer

ABOUT EQUIPMENT

The biosensor consists of a biological receptor (i.e. enzyme) immobilized on the membrane and an electrochemical transducer having gold and silver electrode. Signals generated during biochemical reaction are monitored by electronic device having amplifiers, signal conditioners, current to voltage converter and ADC microelectronic controller.

- Detection range of polyphenol: 0.1-3 mM
- Detection time: 5 min.
- Wash out time: 2 to 3 min
- Life of the membrane: > 80 analyses per enzyme membrane

PRODUCTION CAPACITY – (ESTIMATE)

Number of units: 5/ day

Total working days: 100 days

PROJECT COST (ESTIMATE)

	Rs.000'
1. Land development	Rented
2. Building & Civil work	60.00
3. Plant & equipment	175.00
4. Other fixed assets	130.00
5. Auxiliary equipment	75.00
6. Preliminary & preoperative expenses	350.00
Total fixed project cost	790.00
Working capital	370.00
Total project cost	1160.00

Means of Finance

Promoter's contribution	290.00
Long term loan	870.00