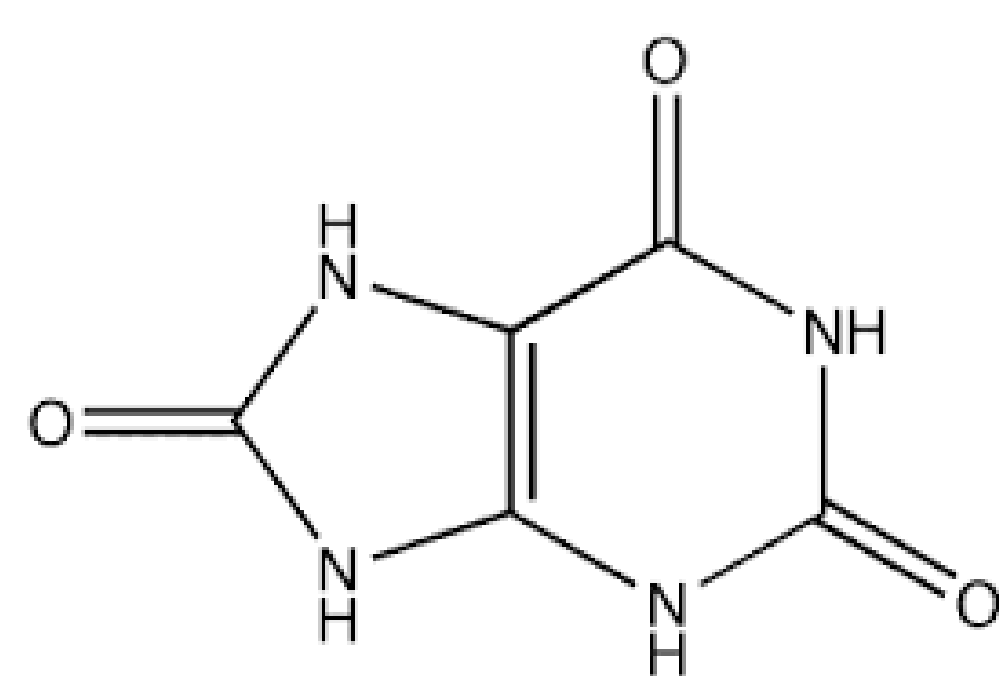




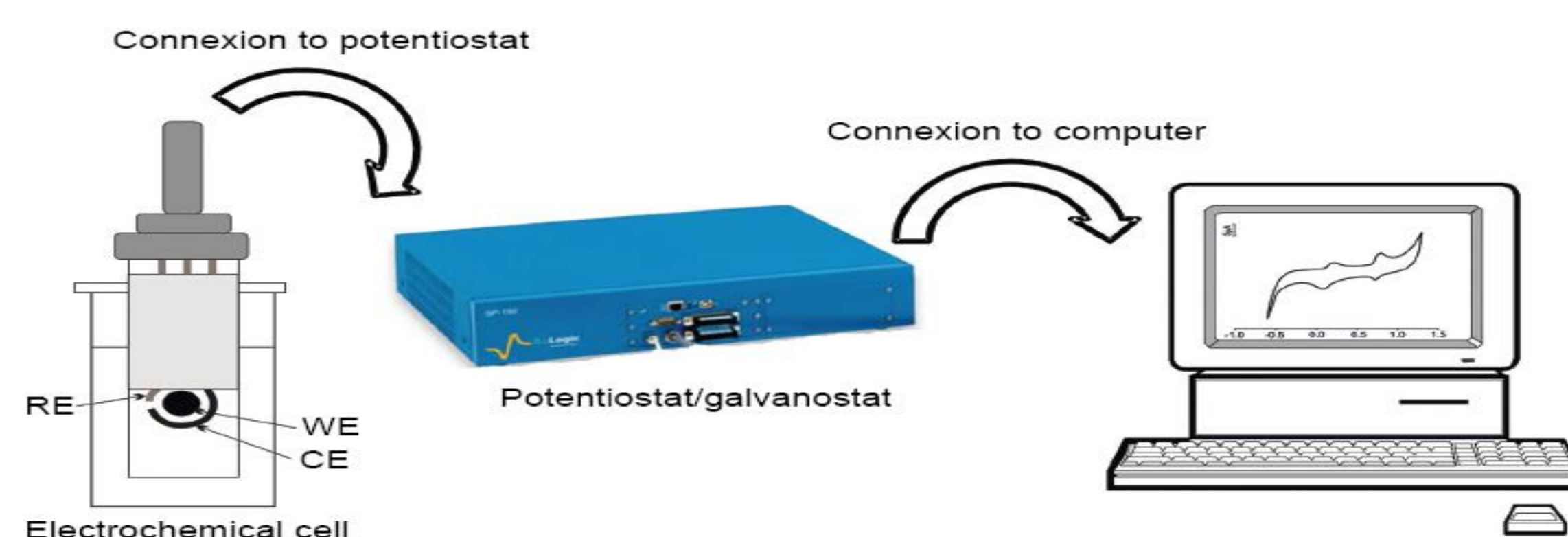
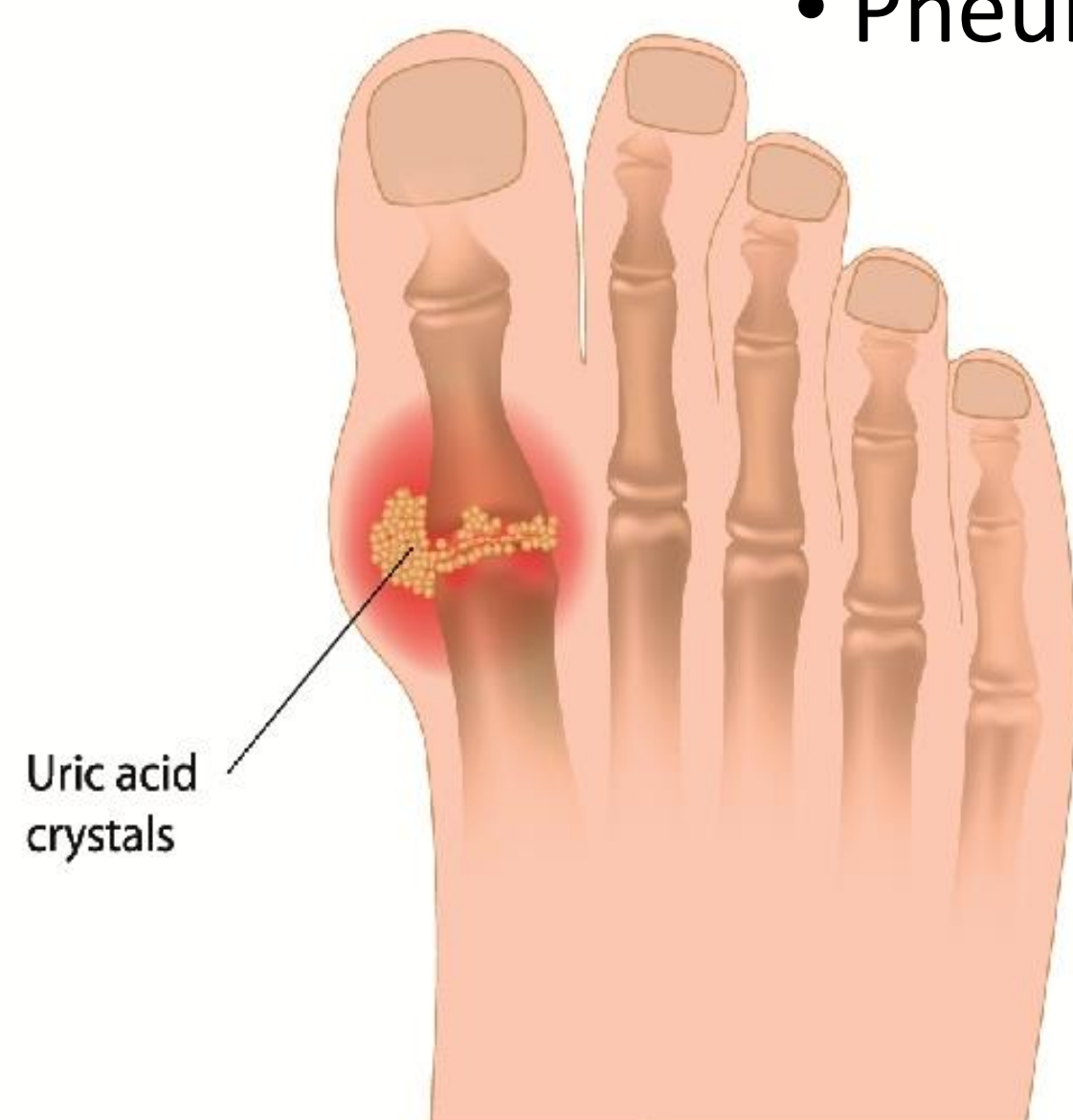
# Method for preparing an electrochemical peptide sensor for uric acid detection

PI 2019006827



Uric Acid

- Gout
- hyper-uricemia
  - Kidney
  - Pneumonia



Electrochemical technique

## BRIEF TECHNOLOGY

The technology is a method for preparing an electrochemical biosensor for the detection of uric acid in biological sample.

## CURRENT ISSUES

Conventional methods for Uric acid Measurement using Fluorescence, HPLC, chemiluminescence is time consuming, need personnel and sample pre-treatment.

The invention relates to a biosensor for detection of uric acid in biological samples in particular to a method for preparing electrochemical peptide sensor system comprising immobilized mini protein mimicking uricase/ZIF-8 onto screen printed carbon electrode.

## INVENTIVENESS & NOVELTY

- The use mini protein loaded into ZIF-8 as bio receptor in electrochemical uric acid detection.
- The use of mini protein with similar binding active site to native enzyme
- The stability of bio receptor towards various conditions, which enables to improve the performance of developed biosensor

## MARKET POTENTIAL

The global biosensors market size was valued at USD 18.2 billion in 2018 and is expected register a CAGR of 8.1% during the forecast period.

The market growth can be attributed to the high demand for miniature diagnostic devices, rapid technological advancements, and increasing scope of application for wearable biosensors in the medical field.

## USEFULNESS & APPLICATION

- Uric acid sensor
- Clinical diagnosis
- Point of care testing

## IMPACT OF THE PRODUCT / ADVANTAGES

	MP20/ZIF-8/RGO BIOSENSOR	COMMERCIALIZED UA METER	ELISA KIT	HPLC
<b>TIME</b>	>5 MINUTES	>5 MINUTES	40 MINUTES	1-2 DAYS
<b>OPERATOR</b>	SELF-HANDLE	SELF-HANDLE	REQUIRED PERSONNEL	REQUIRED PERSONNEL
<b>SAMPLE TYPE</b>	BIOLOGICAL FLUIDS (EX: HUMAN SERUM, URINE)	BLOOD	BIOLOGICAL FLUIDS (EX: HUMAN SERUM, URINE) WITH TEDIOUS SAMPLE PRE-TREATMENT	BIOLOGICAL FLUIDS (EX: HUMAN SERUM, URINE) WITH TEDIOUS SAMPLE PRE-TREATMENT
<b>PRICE PER SAMPLE</b>	<RM6 PER SAMPLE	~RM6 PER SAMPLE	~RM2400 PER KIT	RM150 PER SAMPLE
<b>SENSITIVITY</b>	<0.21 $\mu$ M	<179 $\mu$ M	~0.3 $\mu$ M	~0.37 $\mu$ M
<b>STABILITY</b>	6 MONTHS	6 MONTHS	2 MONTHS (RECONSTITUTED COMPONENTS)	-

TRL : 4-Lab validation



Project Leader : Dr Shahrul Ainliah Alang Ahmad  
 Dept./Faculty : Institute of Advanced Technology  
 Email : ainliah@upm.edu.my  
 Phone : 03 -9769 6805  
 Expertise : Analytical Chemistry

#UNSDG



www.sciencepark.upm.edu.my