SIMPLE, INEXPENSIVE ELECTROCHEMICAL - EPR (EC-EPR) CELL

An inexpensive, disposable two-electrode-system electrochemical cell (EC) for in-situ electron paramagnetic resonance (EPR) spectroscopy is newly designed and utilized for analytical application

THE INVENTION

The newly developed cell simplifies many related electrochemical problems:

- Easy to use EC-EPR cell, compare to the commercially available ones.
- Replaces working electrode (WE) made of precious metals with disposable 'inexpensive' graphite pencil.
- Enables precise online analysis and monitoring of various paramagnetic species generated electrochemically 'on-demand' using EPR technique.

MARKET NEED

Successfully utilized in the pharmaceutical arena for assaying a well-known potential antifungal medication, Ketoconazole (KTZ) drug, where the EPR technique is seldom used as an analytical tool.

COMPETITIVE ADVANTAGE

Compared to the current commercially available flat-EC/EPR cell, new cell offers:

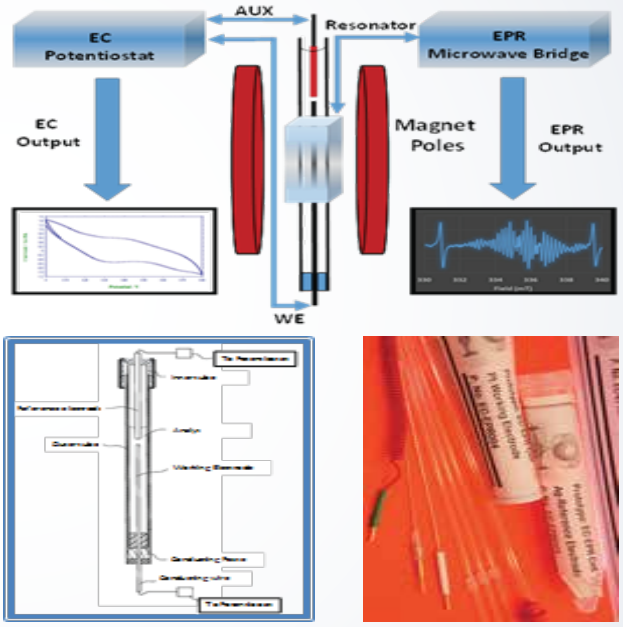
- much better sensitivity for the EC and EPR,
- much less chemical consumption,
- easy handling and easy mounting
- no special holders or orientation required,
- compatible with all standard EPR-resonators.
- could be made of quartz or glass materials
- cheaper price: ~ 10 times lower than the current commercial cells (~ $ 1500).

TECHNOLOGY READINESS:

The prototype has been developed on laboratory scale at KFUPM. The patented method can be implemented on an industrial scale with suitable investment.

OPPORTUNITIES FOR DEVELOPMENT

- Recently KFUPM signed a non-exclusive license agreement with ADANI Company, an international EPR Spectrometer manufacturer, for two prototype units of EPR cell.
- Suitability of this simple EC-EPR technique enables performing many traditional research and application-oriented tasks in, laboratories, field and clinical environment such as
  - pharmaceutical industrial plants,
  - quality control (QC), and
  - in vitro examination of anti-fungal, anti-tumor medications
- KFUPM welcomes interested companies to partner in developing the present EC-EPR cell and method of use.



PATENT PROTECTION

A patent application covering the cell design and method of use has been filed with US Patent Office.

About KFUPM

King Fahd University of Petroleum & Minerals is a leading educational organization for science and technology. KFUPM Innovation Center is the IP management and technology licensing office tasked with taking innovation from lab to market place.

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