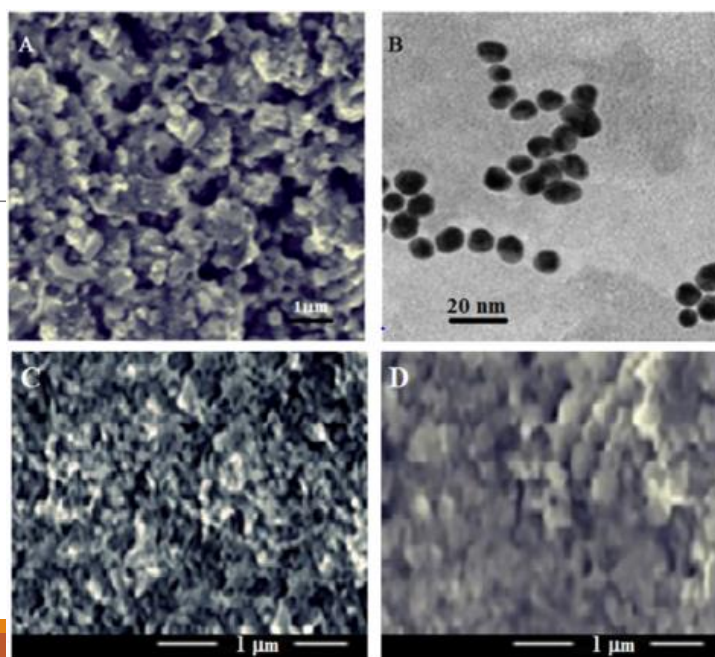
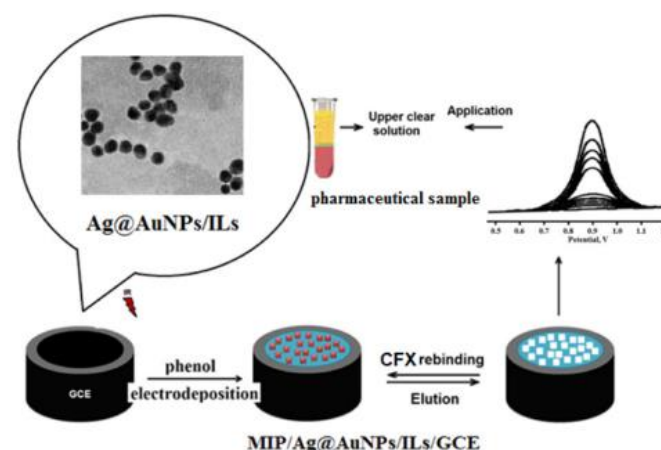


# A highly selective and sensitive voltammetric sensor with molecularly imprinted polymer based silver@gold nanoparticles/ionic liquid modified glassy carbon electrode for determination of ceftizoxime

**Schematic 1. Procedure for MIP/Ag@AuNPs/ILs/GCE.**



**Figure 1. (A) SEM image of Ag@AuNPs/ILs/GCE surface, (B) TEM image of Ag@AuNPs/ILs, (C) SEM images of the MIP electrode surface and (D) the NIP electrode surface**

## 1. Objective of work

Develop a biosensor for detection of presence of Ceftizoxime (CFX), drug used as antibiotic to reduce infection in skin and bones, by the synthesis of the nanocomposite Ag@AuNPs-ILs on glassy carbon electrodes (GCE). The quantification is done via electrochemically.

## 2. Sample description

The component used to attain the NPs to the GCE is 5-(5-bromo-2-hydroxybenzylidenamino)-2-mercaptobenzimidazole, obtained from 0.005 mol of 5-Amino-2-mercaptobenzimidazole, 0.005 mol 5-bromo-2-hydroxybenzaldehyde (both dissolved in 20 mL acetic acid). The AgNPs were obtained from 1 mM AgNO<sub>3</sub> mixed with 40 nM sodium citrate and 110 mM NaBH<sub>4</sub>. The AuNPs were obtained from 0.45 mM HAuCl<sub>4</sub> and 6.25 mM NH<sub>2</sub>OH·HCL. After the preparation of Ag@AuNPs/ILs/GCE as working electrode, it was prepared in voltammetric cell with 25 mM CFX in 0.05 M BR (from 0 V to 1 V, 10 cycles).

## 3. Equipment and conditions for Transmission Electronic Microscopy

TEM images were obtained on a JEOL 2100 HRTEM.

## 4. Results

The presence of Ag@AuNPs on nano-linked with ILs is confirmed on the Fig. 1B. According with the structure analysis, the average diameters are 20-25 nm. In Fig. 1B, the darker nucleus correspond to AgNPs and the lighter shell is AuNPs.