

## **Synthesis and characterization of new choline-based ionic liquids and their antimicrobial properties.**

### **ABSTRACT**

A series of new cholinium-based ionic liquids (ILs) was synthesized by using simple neutralization reaction. The synthesized ILs were choline phenylacetate, choline ricinoleate and choline trichloroacetate. Result obtained from FT-IR, <sup>1</sup>H and <sup>13</sup>C NMR, mass spectrometry, thermogravimetric and differential scanning calorimetry confirmed the formation of these cholinium-based ILs. These ILs were then tested for their anti-microbial properties towards seven types of bacteria which consist of three Gram-positive bacteria, *Bacillus subtilis* (B29), *Staphylococcus aureus* (S276), *Staphylococcus epidermidis* (S273), two Gram-negative bacteria, *Pseudomonas aeruginosa* (ATCC 15442) and *Escherichia coli* (E266) and two types of yeasts, *Candida albicans* (9002) and *Candida tropicalis* (A3). Interestingly, all of the cholinium ILs possess excellent antimicrobial activity as good as the standard, Streptomycin. The most significant antimicrobial activity was observed in choline phenylacetate against all seven types of bacteria tested in this study.

**Keyword** : Ionic liquids; Antimicrobial; Cholinium; Neutralization reaction