**ABSTRACT**

A chronological one-pot, atom economical multicomponent reaction yielding biologically capable cyclohepta[b]indole derivatives (6a-d, 7a-d) through a tandem Knoevenagel condensation followed by Michael addition. The reaction takes place under the organocatalyst L-proline. All the compounds were characterized by spectral and elemental analysis. The compounds were tested for their antimicrobial and DNA binding/cleavage studies. Antimicrobial results indicated that all the compounds have been significantly inhibit the growth of tested microorganisms. Especially compounds with chloro group exhibit potent activity. DNA cleavage of the compounds was study by agarose gel electrophoresis method with pUC19 DNA and found that most of the compounds have significant ability to cleave the DNA. Furthermore, the DNA binding property of the potent derivatives (6c, 7c) was studied by absorption spectra, the results showed that these compounds binds to calf thymus DNA (CT-DNA) in an intercalative mode and its intrinsic binding constants Kb is 3.74 × 104 and 6.73 × 104.