

## Abstract of the proposal

The Scientific research For PhD research scholar includes preparation of some hydrogels in the form of microspheres using chemical and physical cross-linkers like glutaraldehyde, SHMP or SPP. Chitosan, Pectin, carboxymethyl cellulose, PVA, poly (acrylic acid) or polyacrylamide are the polymers which are blend or grafted to the main polymer for increasing the degree of swelling of the final hydrogels. The hydrogels are loaded with some models of drugs used for chronic diseases. The burst and controlled release of the loaded drugs are studied in vitro under different conditions such as in different pHs (pH=1.3 of stomach, pH=7.4 of the blood and pH=9.3 of gastrointestinal), the study is carried out at body temperature (37°C). The following instrument analysis can be used for characterization of the prepared microspheres, FTIR, <sup>1</sup>H NMR, XRD, SEM, TGA, DSC, BET and zeta potential.