The present study envisaged to investigate the effect of different crystallization techniques on dissolution behavior of some selected poorly water soluble drugs (Mefenamic acid, Ketoprofen and Piroxicam).

**Objectives of the study**

1. To select drug candidates for different crystallization techniques based on their physicochemical properties.
2. To prepare crystals for Mefenamic acid, Ketoprofen and piroxicam by different crystallization techniques.
3. To characterize prepared crystals by FT-IR, XRD and DSC.
4. To evaluate the prepared crystals for their micromeritic and mechanical properties.
5. To carry out dissolution studies for prepared different crystals.
6. To prepare tablet dosage form containing different crystals prepared and to compare with marketed product.
The following drugs were selected for study:

Mefenamic acid is insoluble in water, sparingly soluble in Tetra hydro furan, Isopropyl acetate, chloroform and ether and has white to off-white colour. Crystalline powder that darkens on prolonged expose to light. According to the Biopharmaceutical Drug Classification System (BCS) Mefenamic acid is a class II drug, characterized by low solubility and high permeability which mainly displays dissolution-dependent oral bioavailability.

- Ketoprofen is available as fine or micronized powder, white in color. It exhibits poor technological, flow and dissolution properties. According to the Biopharmaceutical Drug Classification System (BCS) Ketoprofen is a class II drug, characterized by low solubility and high permeability which mainly displays dissolution-dependent oral bioavailability.

- Piroxicam is yellowish crystallized powder, show poor micromeritic and mechanical properties. According to the Biopharmaceutical Drug Classification System (BCS) piroxicam is a class II drug, characterized by low solubility and high permeability which mainly displays dissolution-dependent oral bioavailability.