3. OBJECTIVE

The objective of the present investigation is to design and develop Nanoparticles (NPs) of Meloxicam (MLX) using various concentration of the polymer “Chitosan”. The prepared formulations were characterized for various properties like morphological studies, particle size, polydispersity index, zeta potential, Differential Scanning Calorimetry, IR spectroscopy, etc, followed by in vitro drug release studies and in vivo performance of the prepared nanoparticles in suitable animal models.

Selection criteria for the best batch were smaller particle size with low polydispersity index, sufficiently high zeta potential prepared with minimum quantity of carrier (chitosan). The prepared nanoparticles should be devoid of any chemical interaction, good physically stable colloidal dispersion with good in vitro and in vivo performance.

The selected formulations shall be evaluated for their anti-inflammatory effect, anti arthritic activity and ulcerogenic activity by rat paw edema, formaldehyde induced arthritis and pylorus ligation method using Wistar rats weighing (about 200 gm, either sex). The selected formulation was also evaluated for oral bioavailability in wistar rats and comparison with pure drug (meloxicam).

The method should be reproducible, versatile in application (capable of incorporating a variety of drugs with diverse physicochemical properties) and should have high drug entrapment efficiency, which may be a novel approach for formulation development of nanoparticles formulations.