



## Preparation And Invitro Evaluation of Nanocapsules by Using Tapentadol

Stalin Reddy Challa <sup>1\*</sup>, Prasad Garrepally <sup>1</sup>

Jangaon Institute of Pharmaceutical Sciences, Depot. Of Pharmaceutics, Jangaon, India.

\*Corresponding Author: Stalin Reddy Challa, Jangaon Institute of Pharmaceutical Sciences, Depot. Of Pharmaceutics, Jangaon, India.

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### Abstract

The primary object of the current study is to form and evaluate tapentadole nano capsules. According to this study, polymers are used to prepare nano capsules by nanoprecipitation method. In this method ethyl cellulose as a key ingredient and Ethanol is used as solvent. Various formulations were produced by varying the ratios of ethyl cellulose and drug. The resulted formulations were evaluated for parameters like drug content, weight variation, invitro drug release and drug excipient compatibility, SEM, FTIR, DSC. In this method, the release profile highly depends on concentration of polymer.

**Keywords:** Tapentadole, ethyl cellulose, ethanol, nanoprecipitation method

### Introduction

**Nanotechnology** is the science it means small. Nano came from the Greek word "Nano" which means small. Development of nanotechnology on the nanometer scale, usually size ranges from

0.1 to 100nm. Nano materials have established many important applications in biomedical, pharmaceutical, electronic, and molecular diagnostic fields. The polymeric nanoparticle (PNPs) is prepared from biocompatible and biodegradable polymers in size between 10- 1000nm. Where the drug is dissolved, entrapped, encapsulated (or) attached to a nanoparticle's matrix.

### Methodology

#### Method Of Preparation:

NANOPRECIPITATION METHOD OR INTERFACIAL DEPOSITION OF POLYMERS.

#### Materials And Formulation:

Compositions of LNC-Tapentadole and LNC-blank yielding a final volume of 10 ml nanosuspension.

#### Summery And Conclusion

The current work is to prepare tapentadole nano capsules. From the result it is finished that the formulated tapentadole nano capsules are safe to use for oral route.

- In the regard we formulated nano capsules using tapentadole as an active ingredient, using different ratios of a polymer i.e. ethyl cellulose.
- The formulated nano capsule has been subjected to entire possible evaluation tests and the outcome obtained were within standard limits
- Further research will carryout to check scientifically for pharmacological actions of these selected formulation.

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