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### Nanosystems for improved physicochemical properties of poorly water-soluble loratadine

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Recently, nanosystems have been developed to improve drug properties and facilitate delivery. In practice, nanosystems contain particles within a particle size of less than 1000 nm. Loratadine (LOR) is a H1 antihistamine drug commonly prescribed for the treatment of allergic conditions. LOR has poor aqueous and pH-dependent solubility. Consequently, the oral administration is associated with variable and poor bioavailability.

This study investigated the preparation of LOR nanosystems using top-down technologies, particularly precipitation and electrospraying. The critical process and material parameters have been identified and optimized in light of the required attributes.

The two different approaches had different morphologies and physicochemical properties. Therefore, different solubility and dissolution rates. On the other hand, LOR showed an amorphous state in both systems [1].

The nanosystems displayed a particle size of the range of 168-254 nm of LOR nanosuspensions and 372 nm diameter for the nanofibers. In the first 10 min, the nanosystems showed dissolution rates of 30–42% and 66% for the nanosuspensions and nanofibers, respectively [2–3].

The reduction of the particle size is associated with improved dissolution rate, thus bioavailability. Moreover, this improvement could enable the design of new alternative LOR formulations, including buccal, transdermal, and topical dosage forms.

#### References

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