Brief Summary:

The research work that has been submitted was to improve the physicochemical properties of an API namely, Rivaroxaban. Mr. Parth has successfully prepared six eutectics mixture of rivaroxaban with different coformers. Out of the six eutectics, three eutectics have shown improved dissolution rate. Furthermore, eutectics of rivaroxaban with caffeic acid and coumaric acid showed enhance bioavailability. All the eutectics were characterized using different analytical techniques. The research is elaborative and well explained in the manuscript. The manuscript was accepted in recent past and has been appreciated by the reviewers. Furthermore, the journal decided to publish the art work of this particular manuscript on the cover page. Further studies of these eutectics are under process in which we are planning to use these eutectics to prepare amorphous solid dispersions using hot melt extrusion technique. The hot melt extrusion process was successfully carried out at considerably lower temperature using these eutectics. The thermal degradation of the API was avoided and by using hydrophilic polymer we could improved the solubility and dissolution of Rivaroxaban even more. Currently the stability studies of these amorphous solid dispersions are being carried out.

Rivaroxaban belongs to BCS II category with low aqueous solubility. There are many API's in the market which belongs to BCS II and BCS III category. The research proposes that by solid state alterations in the API's we can eventually improve its physicochemical properties. Improved physicochemical properties of API's can further be translated to improvement their bioavailability. The possible ways of solid-state alterations are Cocrystallization, eutectic formation, polymorphism, salt formation, amorphous solid dispersion etc.

Apart from eutectics, Mr. Parth was also involved in the preparation and characterization of polymorphs and hydrates of Erlotinib (DOI: 10.1039/D1CE00032B). Also he had given his important contribution in the study of cocrystals of erlotinib and gefitinib (DOI: 10.1039/D0CE00353K).

Thank you,

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