Technology Offer

Compressible and free flowing co-processed mesoporous silica for the production of amorphous solid dispersions containing active pharmaceutical ingredient

Field of use
Production of drugs

Current state of technology
TLR 4

Intellectual property

Developed by
University of Ljubljana, Faculty of Pharmacy

Reference
UL20210787011P

Contact
Knowledge Transfer Office
Gabriela Droga Mazovec
Phone: +386 1 241 85 83
E-mail: ipr@uni-lj.si
ppz.uni-lj.si

Background

Single unit dosage forms suitable for oral administration of the active pharmaceutical ingredients are usually formulated in the form of solid formulations. In addition to the active pharmaceutical ingredients, these forms, tablets and capsules, contain pharmaceutically acceptable substances called excipients, which are not active and have no therapeutic effect. The formulations give the ability to the active pharmaceutical ingredient to be incorporated into a pharmaceutical dosage form by an industrially feasible process. They may also have the effect of increasing bioavailability of the active substance mainly on the basis of its improved dissolution and absorption.

Description of the invention

The composition of the pharmaceutical excipient with good flow and compaction properties is ensured. The invention provides in particular a co-processed excipient. The co-processed excipient comprises mesoporous silica particles with a large specific surface area and a co-processing substance that physically binds these particles into larger agglomerates. Mesoporous silica materials have poor flowing properties and are incompressible. The co-processing substance is monosaccharide, disaccharide, sugar alcohol, polymer such as microcrystalline cellulose or its derivatives or disintegrant. The composition has a large specific surface area and allows capsules filling or direct compression of mesoporous silica particles and the formation of pharmaceutical tablets in pure form or impregnated with at least one active pharmaceutical ingredient.

Main advantages

-Granules containing mesoporous silicon dioxide have large surface area for impregnation with active pharmaceutical ingredient, are free fowing and compressible.
-Improved dissolution rate of poorly soluble active pharmaceutical ingredient that is impregnated within the pores.
-Taste masking. Bitter taste of active pharmaceutical ingredient can be masked by its incorporation into mesoporous granules.

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