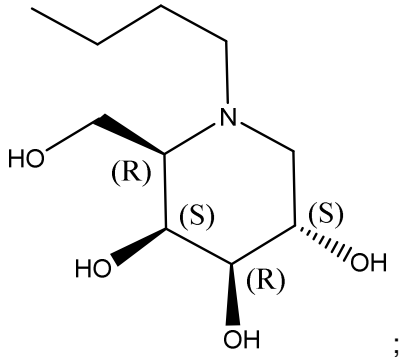
Claims

1. A crystalline form of the compound (2R,3S,4R,5S)-1-butyl-2-(hydroxymethyl)piperidine-3,4,5-triol:



;

characterized by the presence of peaks in the X-ray powder diffraction diagram at the following angles of refraction 2θ: 5.6°, 17.7°, and 21.5°; wherein said X-ray powder diffraction diagram is obtained by using combined Cu Kα1 and Kα2 radiation, without Kα2 stripping; and the accuracy of the 2θ values is in the range of 2θ +/- 0.2°;

wherein said crystalline form consists essentially of particles having a particle size distribution, wherein D50 is equal or greater than 50 µm.

2. A crystalline form of the compound (2R,3S,4R,5S)-1-butyl-2-(hydroxymethyl)piperidine-3,4,5-triol according to claim 1, characterized by the presence of peaks in the X-ray powder diffraction diagram at the following angles of refraction 2θ: 5.6° 12.4°, 14.8°, 17.7°, and 21.5°; wherein said X-ray powder diffraction diagram is obtained by using combined Cu Kα1 and Kα2 radiation, without Kα2 stripping; and the accuracy of the 2θ values is in the range of 2θ +/- 0.2°.

3. A crystalline form of the compound (2R,3S,4R,5S)-1-butyl-2-(hydroxymethyl)piperidine-3,4,5-triol according to claim 1, characterized by the presence of peaks in the X-ray powder diffraction diagram at the following angles of refraction 2θ: θ: 5.6° 12.4°, 13.4°, 14.8°, 16.8°, 17.7°, 19.4°, 21.5°, 22.1°, and 24.2°; wherein said X-ray powder diffraction diagram is obtained by using combined Cu Kα1 and Kα2 radiation, without Kα2 stripping; and the accuracy of the 2θ values is in the range of 2θ +/- 0.2°.

4. A crystalline form of the compound (2R,3S,4R,5S)-1-butyl-2-(hydroxymethyl)piperidine-3,4,5-triol according to claim 1, which essentially shows the X-ray powder diffraction pattern as depicted in Figure 1.

5. A crystalline form of the compound (2R,3S,4R,5S)-1-butyl-2-(hydroxymethyl)piperidine-3,4,5-triol according to claim 1, wherein said crystalline form shows endothermal melting with a peak at 130 °C +-3 °C as determined by differential scanning calorimetry.

6. A crystalline form of the compound (2R,3S,4R,5S)-1-butyl-2-(hydroxymethyl)piperidine-3,4,5-triol according to claim 3, wherein said crystalline form shows endothermal melting with a peak at 130 °C +-3 °C as determined by differential scanning calorimetry.

7. A crystalline form of the compound (2R,3S,4R,5S)-1-butyl-2-(hydroxymethyl)piperidine-3,4,5-triol according to claim 6, wherein said crystalline form has a total impurity amount of less than 0.5%.

8. A crystalline form of the compound (2R,3S,4R,5S)-1-butyl-2-(hydroxymethyl)piperidine-3,4,5-triol according to any one of claims 1,3, 6, or 7 wherein said crystalline form consists essentially of particles having a particle size distribution, wherein D50 is equal or greater than 70 µm.

9. A crystalline form of the compound (2R,3S,4R,5S)-1-butyl-2-(hydroxymethyl)piperidine-3,4,5-triol according to any one of claims 1, 3, 6, or 7, wherein said crystalline form consists essentially of particles having a particle size distribution, wherein D50 is 50 µm +-10% to 300 µm +-10%.

10. A crystalline form of the compound (2R,3S,4R,5S)-1-butyl-2-(hydroxymethyl)piperidine-3,4,5-triol according to any one of claims 1, 3, 6, or 7, wherein said crystalline form consists essentially of particles having a particle size distribution, wherein D50 is 70 µm +-10% to 250 µm +-10%.

11. A crystalline form of the compound (2R,3S,4R,5S)-1-butyl-2-(hydroxymethyl)piperidine-3,4,5-triol according to any one of claims 1, 3, 6, or 7, wherein said crystalline form consists essentially of particles having a particle size distribution, wherein

- D50 is from 50 µm ±10% to 150 µm±10%; and
- D90 is from 100 µm±10% to 400 µm±10%.

12. A pharmaceutical composition, comprising:

- as active ingredient from 55 ww% (±10% of 55 ww%) to 75 ww% (±10% of 75 ww%) of the crystalline form of the compound (2R,3S,4R,5S)-1-butyl-2-(hydroxymethyl)piperidine-3,4,5-triol according to any one of claims 1 to 11;

- from 24 ww% (±10% of 24 ww%) to 44 ww% (±10% of 44 ww%) of lactose anhydrous; and
- from 0 ww% to 6 ww% (±10% of 6 ww%) of a component selected from a group consisting of talc, magnesium stearate, sodium stearyl fumarate, silicon dioxide, or a combination thereof;

wherein the total ww% of said pharmaceutical composition is 100.

13. A pharmaceutical composition according to claim 12, wherein the tapped density of said pharmaceutical composition is at least 0.64 g/mL.

14. A capsule comprising the pharmaceutical composition according to claim 12 or 13.

15. A capsule comprising the pharmaceutical composition according to claim 14, wherein said capsule comprises an amount of 250 mg +-10% of active ingredient.

16. A capsule according to claim 15, wherein said capsule is a capsule of size 0.

17. Use of a crystalline form of the compound (2R,3S,4R,5S)-1-butyl-2-(hydroxymethyl)piperidine-3,4,5-triol according to any one of claims 1 to 11, for the preparation of a medicament for the prevention/prophylaxis or treatment of Fabry disease.

18. Use according to claim 17 wherein said medicament is in form of a capsule according to any one of claims 14 to 16.