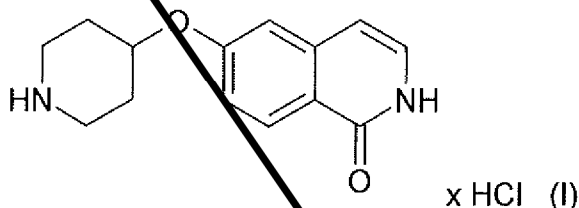


Claims

- 5 1. A crystalline polymorph of 6-(Piperidin-4-yloxy)-2H-isoquinolin-1-one hydrochloride having the formula



- 10 wherein the polymorph exhibits in an X-ray powder diffractogram using $\text{CuK}\alpha_1$ radiation at least reflections within the two ranges selected from
- 1) 15.4 -15.8 and
 - 2) 16.5 -16.8 $\pm$ 0.2 degrees 2theta.

- 15 2. The polymorph of 6-(Piperidin-4-yloxy)-2H-isoquinolin-1-one hydrochloride as claimed in claim 1, which is polymorph 2 and has at least reflection in an X-ray powder diffractogram using $\text{CuK}\alpha_1$ radiation at 8.1, 15.8 and 16.5 degrees 2theta $\pm$ 0.2 degrees 2theta.

- 20 3 The polymorph of 6-(Piperidin-4-yloxy)-2H-isoquinolin-1-one hydrochloride as claimed in claim 2, which is polymorph 2 and has at least reflection in an X-ray powder diffractogram using $\text{CuK}\alpha_1$ radiation at 8.1, 15.8, 16.5, 22.2, 25.0 and 26.6 degrees 2theta $\pm$ 0.2 degrees 2theta.

- 25 4. The polymorph of 6-(Piperidin-4-yloxy)-2H-isoquinolin-1-one hydrochloride as claimed in claim 1, which is polymorph 1 and has at least reflections in an X-ray powder diffractogram using $\text{CuK}\alpha_1$ radiation at 4.5, 15.4, 16.8, 21.7 and 24.7 degrees 2theta $\pm$ 0.2 degrees 2theta.

5. The polymorph of 6-(Piperidin-4-yloxy)-2H-isoquinolin-1-one hydrochloride as claimed in claim 4, which is polymorph 1 and has at least reflections in an X-ray powder diffractogram using $\text{CuK}\alpha_1$ radiation at 4.5, 15.4, 16.8, 21.7, 22.8 and 24.7 degrees $2\theta \pm 0.2$ degrees 2θ .

6. The polymorph of 6-(Piperidin-4-yloxy)-2H-isoquinolin-1-one hydrochloride as claimed in claim 1, which is polymorph 3 and has at least reflections in an X-ray powder diffractogram using $\text{CuK}\alpha_1$ radiation at 4.5, 15.4, 16.7, 21.7 and 25.5 degrees $2\theta \pm 0.2$ degrees 2θ .

7. The polymorph of 6-(Piperidin-4-yloxy)-2H-isoquinolin-1-one hydrochloride as claimed in claim 6, which is polymorph 3 and has at least reflections in an X-ray powder diffractogram using $\text{CuK}\alpha_1$ radiation at 4.5, 15.4, 16.7, 21.7, 22.3 and 25.5 degrees $2\theta \pm 0.2$ degrees 2θ .

8. The polymorph of 6-(Piperidin-4-yloxy)-2H-isoquinolin-1-one hydrochloride as claimed in claim 1, which is polymorph 4 and has at least reflections in an X-ray powder diffractogram using $\text{CuK}\alpha_1$ radiation at 15.4, 16.7, 21.5 and 30.7 degrees $2\theta \pm 0.2$ degrees 2θ .

9. The polymorph of 6-(Piperidin-4-yloxy)-2H-isoquinolin-1-one hydrochloride as claimed in claim 8, which is polymorph 4 and has at least reflections in an X-ray powder diffractogram using $\text{CuK}\alpha_1$ radiation at 15.4, 16.7, 16.9, 21.5, 22.4, and 30.7 degrees $2\theta \pm 0.2$ degrees 2θ .

10. The polymorph of 6-(Piperidin-4-yloxy)-2H-isoquinolin-1-one hydrochloride according to any of claims 1 to 9 for use as a medicament.

11. The polymorph of 6-(Piperidin-4-yloxy)-2H-isoquinolin-1-one hydrochloride according to any of claims 1 to 9 for use as a medicament for the treatment and/or prevention of hypertension, pulmonary hypertension, ocular hypertension, retinopathy, glaucoma, peripheral circulatory disorder, peripheral occlusive arterial disease (PAOD), coronary heart disease, angina pectoris, heart hypertrophy, heart failure, ischemic diseases, end

organ damage, fibroid lung, fibroid liver, liver failure, nephropathy, renal failure, fibroid kidney, renal glomerulosclerosis, organ hypertrophy, asthma, chronic obstructive pulmonary disease (COPD), adult respiratory distress syndrome, thrombotic disorders, stroke, cerebral vasospasm, cerebral ischemia, pain, neuronal degeneration, spinal cord injury, Alzheimer's disease, premature birth, erectile dysfunction, endocrine dysfunctions, arteriosclerosis, prostatic hypertrophy, diabetes and complications of diabetes, metabolic syndrome, blood vessel restenosis, atherosclerosis, inflammation, autoimmune diseases, osteopathy, infection of digestive tracts with bacteria, sepsis or cancer development and progression.

12. A solid pharmaceutical composition comprising the polymorph of 6-(Piperidin-4-yloxy)-2H-isoquinolin-1-one hydrochloride according to any of claims 1 to 9 and one or more pharmaceutical acceptable excipients.

13. The composition as claimed in claim 12 for the treatment of and/or prevention of hypertension, pulmonary hypertension, ocular hypertension, retinopathy, glaucoma, peripheral circulatory disorder, peripheral occlusive arterial disease (PAOD), coronary heart disease, angina pectoris, heart hypertrophy, heart failure, ischemic diseases, end organ damage, fibroid lung, fibroid liver, liver failure, nephropathy, renal failure, fibroid kidney, renal glomerulosclerosis, organ hypertrophy, asthma, chronic obstructive pulmonary disease (COPD), adult respiratory distress syndrome, thrombotic disorders, stroke, cerebral vasospasm, cerebral ischemia, pain, neuronal degeneration, spinal cord injury, Alzheimer's disease, premature birth, erectile dysfunction, endocrine dysfunctions, arteriosclerosis, prostatic hypertrophy, diabetes and complications of diabetes, metabolic syndrome, blood vessel restenosis, atherosclerosis, inflammation, autoimmune diseases, osteopathy, infection of digestive tracts with bacteria, sepsis or cancer development and progression.

14. The polymorph of 6-(Piperidin-4-yloxy)-2H-isoquinolin-1-one hydrochloride according to any of claims 1 to 9, for use as a medicament for the treatment and/or prevention of nephropathy.

15. Use according to claim 14, wherein nephropathy is diabetic nephropathy.

16. A pharmaceutical comprising one or more compounds as claimed in one or more of claims 1 to 9 and at least one further active ingredient.

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17. The pharmaceutical as claimed in claim 16, which comprises, as a further active ingredient, one or more antidiabetic agents, active hypoglycemic ingredients or anti-hypertension agents.

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18. The pharmaceutical as claimed in claim 16, which comprises, as a further active ingredient, one or more beta receptor blockers, calcium channel blockers or inhibitors of the rennin-angiotensin.

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19. The pharmaceutical as claimed in claim 18, which comprises as a further active ingredient Verapamil, Gallopamil, Fendilin, Diltiazem, Nitrendipin, Felodipin, Amlodipin, Nifedipin, Lercanidipin, Nimodipin, Nicardipin, Lacidipin, Isradipin, Nisoldipin, Nilvadipin or Manidipin.

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20. The pharmaceutical as claimed in claim 19, which comprises as a further active ingredient Amlodipin.

21. The pharmaceutical as claimed in claim 16, which comprises as a further active ingredient, one or more ACE (Angiotensin Converting Enzyme) inhibitors.

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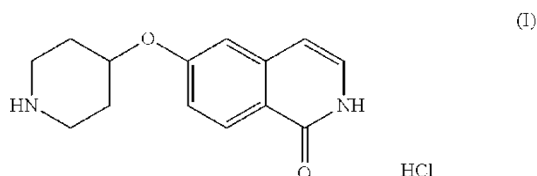
22. The pharmaceutical as claimed in claim 21, which comprises as a further active ingredient Benazepril, Captopril, Cilazapril, Enalapril, Fosinopril, Imidapril, Lisinopril, Moexipril, Perindopril, Quinapril, Ramipril, Spirapril, Trandolapril or Zofenopril.

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23. Use of the polymorph of 6-(Piperidin-4-yloxy)-2H-isoquinolin-1-one hydrochloride as claimed in claim 1, which is polymorph 1, polymorph 2, polymorph 3 or polymorph 4 for the preparation of the dihydrate of 6-(Piperidin-4-yloxy)-2H-isoquinolin-1-one.

CLAIMS

1. A crystalline polymorph of 6-(Piperidin-4-yloxy)-2H-isoquinolin-1-one hydrochloride having the formula



wherein the polymorph exhibits in an X-ray powder diffractogram using $\text{CuK}\alpha_2$ radiation at least reflections within the two ranges selected from 1) 15.4-15.8 and 2) $16.5-16.8 \pm 0.2$ degrees 2θ .

2. The polymorph of 6-(Piperidin-4-yloxy)-2H-isoquinolin-1-one hydrochloride as claimed in claim 1, which is polymorph 2 and has at least reflection in an X-ray powder diffractogram using $\text{CuK}\alpha_1$ radiation at 8.1, 15.8 and 16.5 ± 0.2 degrees 2θ .

3. The polymorph of 6-(Piperidin-4-yloxy)-2H-isoquinolin-1-one hydrochloride as claimed in claim 2, which is polymorph 2 and has at least reflection in an X-ray powder diffractogram using $\text{CuK}\alpha_1$ radiation at 8.1, 15.8, 16.5, 22.2, 25.0 and 26.6 ± 0.2 degrees 2θ .

4. The polymorph of 6-(Piperidin-4-yloxy)-2H-isoquinolin-1-one hydrochloride as claimed in claim 1, which is polymorph 1 and has at least reflections in an X-ray powder diffractogram using $\text{CuK}\alpha_1$ radiation at 4.5, 15.4, 16.8, 21.7 and 24.7 ± 0.2 degrees 2θ .

5. The polymorph of 6-(Piperidin-4-yloxy)-2H-isoquinolin-1-one hydrochloride as claimed in claim 4, which is polymorph 1 and has at least reflections in an X-ray powder diffractogram using $\text{CuK}\alpha_1$ radiation at 4.5, 15.4, 16.8, 21.7, 22.8 and 24.7 degrees $2\theta \pm 0.2$ degrees 2θ .
6. The polymorph of 6-(Piperidin-4-yloxy)-2H-isoquinolin-1-one hydrochloride as claimed in claim 1, which is polymorph 3 and has at least reflections in an X-ray powder diffractogram using $\text{CuK}\alpha_1$ radiation at 4.5, 15.4, 16.7, 21.7 and 25.5 degrees $2\theta \pm 0.2$ degrees 2θ .
7. The polymorph of 6-(Piperidin-4-yloxy)-2H-isoquinolin-1-one hydrochloride as claimed in claim 6, which is polymorph 3 and has at least reflections in an X-ray powder diffractogram using $\text{CuK}\alpha_1$ radiation at 4.5, 15.4, 16.7, 21.7, 22.3 and 25.5 degrees $2\theta \pm 0.2$ degrees 2θ .
8. The polymorph of 6-(Piperidin-4-yloxy)-2H-isoquinolin-1-one hydrochloride as claimed in claim 1, which is polymorph 4 and has at least reflections in an X-ray powder diffractogram using $\text{CuK}\alpha_1$ radiation at 15.4, 16.7, 21.5 and 30.7 degrees $2\theta \pm 0.2$ degrees 2θ .
9. The polymorph of 6-(Piperidin-4-yloxy)-2H-isoquinolin-1-one hydrochloride as claimed in claim 8, which is polymorph 4 and has at least reflections in an X-ray powder diffractogram using $\text{CuK}\alpha_1$ radiation at 15.4, 16.7, 16.9, 21.5, 22.4, and 30.7 degrees $2\theta \pm 0.2$ degrees 2θ .
10. A pharmaceutical composition comprising the polymorph of 6-(Piperidin-4-yloxy)-2H-isoquinolin-1-one hydrochloride according to claim 1.

11. A solid pharmaceutical composition comprising the polymorph of 6-(Piperidin-4-yloxy)-2H-isoquinolin-1-one hydrochloride according to claim 1 and one or more pharmaceutical acceptable excipients.
12. The pharmaceutical composition according to claim 10, further comprising at least one further active ingredient.
13. The pharmaceutical composition as claimed in claim 12, which comprises, as a further active ingredient, one or more antidiabetic agents, active hypoglycemic ingredients or anti-hypertension agents.
14. The pharmaceutical composition as claimed in claim 12, which comprises, as a further active ingredient, one or more beta receptor blockers, calcium channel blockers or inhibitors of the rennin-angiotensin.
15. The pharmaceutical composition as claimed in claim 14, which comprises as a further active ingredient Verapamil, Gallopamil, Fendilin, Diltiazem, Nitrendipin, Felodipin, Amlodipin, Nifedipin, Lercanidipin, Nimodipin, Nicardipin, Lacidipin, Isradipin, Nisoldipin, Nilvadipin or Manidipin.
16. The pharmaceutical composition as claimed in claim 15, which comprises as a further active ingredient Amlodipin.
17. The pharmaceutical composition as claimed in claim 12, which comprises as a further active ingredient, one or more ACE (Angiotensin Converting Enzyme) inhibitors.

18. The pharmaceutical composition as claimed in claim 17, which comprises as a further active ingredient Benazepril, Captopril, Cilazapril, Enalapril, Fosinopril, Imidapril, Lisinopril, Moexipril, Perindopril, Quinapril, Ramipril, Spirapril, Trandolapril or Zofenopril.