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An improved process for preparing 1-(4-fluorophenyl)-4-[(6bR,10aS)-3-methyl-2,3,6b,9,10,10a-hexahydro-11H-pyrido[3',4':4,5] pyrrolo[1,2,3-de]quinoxalin-8(7H)-yl]butan-1-one tosylate

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This report is related to improved process for the preparation of 1-(4-fluorophenyl)-4-[(6b*R*,10a*S*)-3-methyl-2,3,6b,9,10,10a-hexahydro-11*H*-pyrido[3′,4′:4,5] pyrrolo[1,2,3-*de*]quinoxalin-8(7*H*)-yl]butan-1-one (Formula 1) and its salts.

Example 1: Process for preparing 1-(4-fluorophenyl)-4-[(6bR,10aS)-3-methyl-2,3,6b,9,10,10a-hexahydro-11H-pyrido[3′,4′:4,5]pyrrolo[1,2,3-de]quinoxalin-8(7H)-yl]butan-1-one. pTSA (Formula 1).

(6bR,10aS)-2,3,6b,7,8,9,10,10a-Octahydro-3-methyl-1H-pyrido[3′,4′:4,5]pyrrolo[1,2,3-de]quinoxaline tosylate (Compound A, 1 Eq) and 4-chloro-1-(4-fluorophenyl)-1-butanone (1.7 Eq) was taken together in a reactor in toluene solvent (7 V). Potassium carbonate (2 Eq) and KI (1.5 Eq) was charged, and contents were refluxed together. After completion of reaction (Monitored through HPLC), water was charged in to the RM. The organic layer was separated, distilled to reduce the volume (<2V), and isopropyl acetate was charged. After stirring, pTSA (~1 Eq) solution in methanol was charged to RM. Solid obtained was filtered, washed with isopropyl acetate and dried to yield title compound.