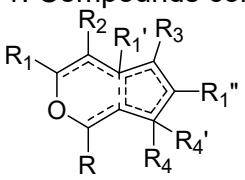
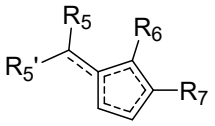
CLAIMS

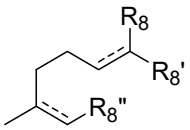
1. Compounds comprising the general formula:



(I) ,



(II) ,



(III)

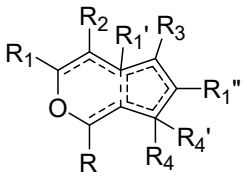
wherein R corresponds to H, OH, OGlyc (Glycoside); R_1, $R_{1'}$, $R_{1''}$ correspond to H, OH; R_2 corresponds to H, COOH, $COOCH_3$, CH_3, CHO; R_3 corresponds to H, OH, CH_3; R_4, $R_{4'}$ correspond to H, OH, CH_2OH, CH_3; R_5, $R_{5'}$ correspond to H, CH_3, $COOCH_3$, CHO, CH_2OH; R_6 corresponds to CHO, COOH, $COOCH_3$; R_7 corresponds to H, CH_3; R_8, $R_{8'}$, $R_{8''}$ correspond to CHO, CH_3, CH_2OH, COOH and the dashed bonds represent single (C-C) or double (C=C) bonds between carbons (up to two double bonds per structure).

2. Compounds, according to claim 1, having immunosuppressive activity.

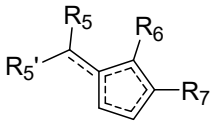
3. Method of treatment of immune disorders, comprising the step of administering to a patient one compound of general formula (I), (II) and/or (III), in sufficient amount to provide immunosuppressive effect.

4. Method of treatment, according to claim 3, for the treatment of patients with vitiligo.

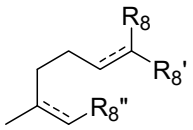
5. Pharmaceutical composition comprising compounds derived from ipolamiide for the treatment of immune disorders, wherein the compounds comprise at least one compound selected from the group that comprises:



a) **(I)** ,



b) **(II)** ; and/or



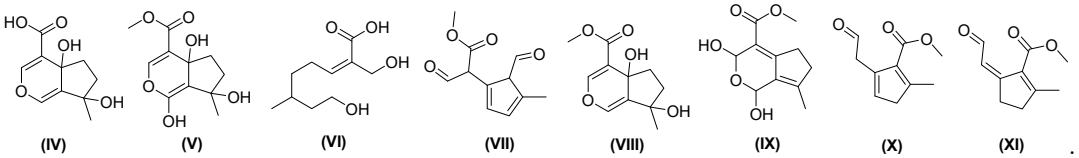
c) **(III)** ,

wherein R corresponds to H, OH, OGlyc (Glycoside); R_1, $R_{1'}$, $R_{1''}$ correspond to H, OH; R_2 corresponds to H, COOH, $COOCH_3$, CH_3, CHO; R_3 corresponds to H, OH, CH_3; R_4, $R_{4'}$ correspond to H, OH, CH_2OH, CH_3; R_5, $R_{5'}$ correspond to H, CH_3, $COOCH_3$, CHO, CH_2OH; R_6 corresponds to CHO, COOH, $COOCH_3$; R_7 corresponds to H, CH_3; R_8, $R_{8'}$, $R_{8''}$ correspond to CHO, CH_3, CH_2OH, COOH and the dashed bonds represent single (C-C) or double (C=C) bonds between carbons (up to two double bonds per structure); and

d) pharmaceutically acceptable vehicle.

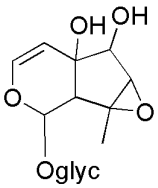
6. Pharmaceutical composition, according to claim 5, further comprising the ipolamiide compound.

7. Pharmaceutical composition, according to claim 5, comprising at least one of the following compounds:

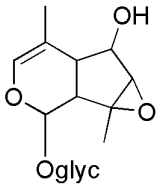


(IV) **(V)** **(VI)** **(VII)** **(VIII)** **(IX)** **(X)** **(XI)** .

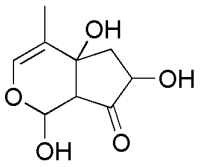
8. Pharmaceutical composition, according to claim 5, additionally comprising at least one of the following compounds:



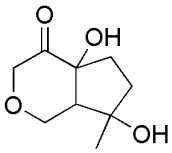
(XII)



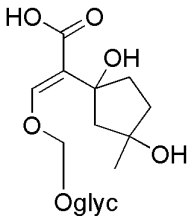
(XIII)



(XIV)



(XV)



(XVI)

9. Process for production of active compounds comprising the step of subjecting at least one ipolamiide compound to a heating step at high temperatures in a suitable solvent for a time sufficient to obtain the ipolamiide derivatives of formula (I), (II) and/or (III).

10. Process for production, according to claim 9, wherein the active compounds comprise immunosuppressive activity.

11. Process for production, according to claim 9, wherein the solvent is water.

12. Process for production, according to claim 9, allowing to obtain high concentrations of the compounds of formula (I), (II) and/or (III).

13. Process for production, according to claim 9, wherein the high concentrations comprise about 0.5% to about 45% of the compounds of formula (I), (II) and/or (III) in a mixture.

14. Process for production, according to claim 9, wherein the high temperatures comprise temperatures above 35 °C.

15. Process for production, according to claim 14, wherein the high temperatures comprise temperatures between 35 °C and 165 °C.

16. Process for production, according to claim 9, comprising the hydrolysis step.

17. Process for production, according to claim 16, comprising an acid hydrolysis step.

18. Process for production, according to claim 16, comprising a basic hydrolysis step.

19. Process for production of extract enriched with compounds derived from

ipolamiide comprising the steps of:

a) selecting input vegetal biomass with a content of ipolamiide between 2.5% and 3.5% obtained from plants of the genus *Stachytarpheta*;

b) submitting the selected biomass from a) to oven drying at temperature between 40 to 80 °C, until obtaining the humidity stabilization between 10 to 12%;

c) milling the vegetal biomass;

d) performing the extraction of the vegetal biomass through the steps of:

i. heating of the vegetal biomass at a temperature between 70 to 100 °C, with constant stirring;

ii. maceration of the vegetal biomass at room temperature;

iii. heating of the vegetal biomass with temperature between 70 to 100 ºC.

20. Process for production of extract, according to claim 19, further comprising the steps of:

iv. filtering and concentration of the extract;

v. drying in Spray Dryer, during 1 to 60 seconds, with inlet temperature between 155 and 165 °C and outlet temperature between 85 to 95 °C, coupled to a dehumidifier.

21. Process for production of extract, according to claim 19, in which the vegetal biomass heating of d) occur for 5 to 30 minutes.

22. Process for production of extract, according to claim 19, in which the vegetal biomass heating of d) occur for 5 to 15 hours.

23. Process for production of extract, according to claim 19, in which the input vegetal biomass comprises the aerial parts of the plants of the genus *Stachytarpheta*.

24. Process for production of extract, according to claim 19, in which the plant is *Stachytarpheta cayennensis*.

25. Process for production of extract, according to claim 19, in which the process enables an extraction yield of about 8 to about 10%.

26. Process for production of the extract, according to claim 19, in which the process comprises an aqueous extraction.

27. Process for production of extract, according to claim 19, in which the process provides an extract containing about 1% to about 20% of ipolamiide and derivatives.

28. Process for production of extract, according to any one of claims 19 to 27, comprising the step of predicting the theoretical content of ipolamiide and derivatives in the extract from the actual content of ipolamiide in the input vegetal biomass using Equation I:

% Theoretical content of ipolamiide and derivatives in the extract = % Actual content of ipolamiide in the vegetal biomass x DER / (< actual content of ipolamiide and derivatives in the extract/actual content of ipolamiide in the input vegetal biomass >) ± standard deviation (Equation I).

29. Standardized extracts, wherein the extracts are obtained from the plants of the genus *Stachytarpheta* and comprises at least one compound of general formula (I), (II) and/or (III).

30. Extracts enriched with compounds derived from ipolamiide obtained by the process as defined in any of the claims 19 to 27.

31. Enriched standardized extract fractions from plants of the genus *Stachytarpheta* comprising at least one compound of general formula (I), (II) and/or (III).

32. Use of extract and/or standardized fractions comprising compounds derived from ipolamiide of general formula (I), (II) and/or (III), for the manufacture of a medicament with immunosuppressive activity for the treatment of immunological disorders.