Reviewer's report

Title: Anti-diabetic Indian Ayurvedic medicinal plants as potent inhibitors of pancreatic alpha-amylase activity

Version: 1 Date: 13 September 2010

Reviewer: Emmanouil Apostolidis

Reviewer's report:

General Comment:
This manuscript is focused on alpha-amylase inhibition mediated type 2 diabetes management. However, the authors are missing a very important fact for carbohydrate hydrolyzing enzyme inhibition type 2 diabetes management strategies: The main target is inhibition of alpha-glucosidase and NOT alpha-amylase. As a matter of fact, excessive alpha-amylase inhibition via acarbose (which is an alpha-glucosidase inhibitor) is the major reason for the side effects observed from such medications. Most research efforts today are focused in determining natural alpha-glucosidase inhibitors that have low alpha-amylase inhibition.

Major Essential Revisions:
1) The authors should distinguish in the results section when they are using the DNS and when the iodine assay. As the manuscript is now it appears that only the iodine assay was used.
2) The authors should specify why they are using 2 assays for alpha-amylase. Why use a separate assay for screening?
3) A major revision should be performed in the down-toning the manuscript and mentioning that excessive alpha-amylase inhibition have side effects.
4) The authors should make clear in the manuscript that the desired enzyme to be inhibited for type 2 diabetes management is alpha-glucosidase which results to alpha-amylase inhibition.

Minor Essential Revisions:
1) Page 3, line 9: The authors should state what this study endorses. However, they should be very careful on the word selection, since they should not state that they endorse these plants for type 2 diabetes management. Maybe they can endorse these plants for further studies to determine the potential for type 2 diabetes management.
2) Page 5, line 4: The authors mention that the currently used drugs for type 2 diabetes treatment have side effects. They should also mention that they mainly have side effects due to excessive alpha-amylase inhibition.
3) Page 5, Lines 18-20: The reference used to cite this statement (13) does not mention anything about discovery of new alpha-amylase inhibitors. This
statement should be removed or the citation should change.

4) Page 8, Line 18: The title should be changed to DNS assay (since the first assay was titled starch-iodine assay). The current title is not correct since both assays described are alpha-amylase inhibition assay and there is no other way to differentiate them

5) Page 11, Line 4: Appropriate references should be provided for the claimed several studies that were performed on these plants.

6) Page 15, Lines 16-18: This research does not show that blood glucose levels are reduced. The phrase should be changed accordingly.

The Results and Discussion section is confusing as presented. This reviewer suggests to divide in two sections (Separate results and discussion)

Discretionary Revisions:
Page 11, Lines 18-24: Move this to the Materials and Methods section.

Level of interest: An article of limited interest

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:
I declare that I have no competing interests