Reviewer's report

Title: Anti-diabetic potential, antioxidant and antibacterial activities of traditional medicinal plants

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Reviewer: Alejandro Tapia

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Anti-diabetic potential, antioxidant and antibacterial activities of traditional medicinal plants
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The work is a preliminary study of the activities reported, on which I want to make some observations.

1- Antioxidant activity determined by 1, 1-diphenyl-2-picrylhydrazyl (DPPH) radical Inhibition. The authors should look at some paper, which reported antioxidant activity of plants
A single in vitro method (DPPH assay) is not sufficient to inform the antioxidant activity.
Some antioxidant compounds should be included in the graph
On the other hand, the Figure 2 legend is unclear. That means the following paragraph:
were screened for enzyme inhibitory activity

Title: DPPH Assay
Figure Legend: Fig. 2. Percentage Inhibition of DPPH by plant extracts. For all extracts,
concentrations of 20 – 1000 µg/ml were screened for enzyme inhibitory activity and the highest activity is presented in the results shown. (n=3; data expressed as mean ± SD)

2- Minimum inhibitory and bactericidal concentration of Indian Ayurvedic plant extracts
The most MIC values shown in the table 4 are high, they are in the order of 3.9-15.6 times or more compared to the values considered promising for an extract ( < 1000µg/ml).
The MBC are very high, with values between 62000µg/ml and 125000. These results should be deleted from main text of the paper.

Authors should include positive controls for bacteria in Table 4. A paper must be based on a thorough and extensive study, using proper controls.

Some data presented are lack of novelty. The study must represent a novel approach to the study of the activity, i.e. not more or less repeating what has already been published with similar results, but e.g. only using an other extract of the same plant, or, in case of antimicrobial activity, some other microorganisms.

It has been reported that seeds of Eugenia jambolana have glucose-lowering potential, -glucosidase and -amylase inhibition and antioxidant activity [37, 38]. The antibacterial activity has also been reported with an MIC of 250 µg/ml against E. coli and P. aeruginosa, 125 µg/ml against S. aureus and 62.5 µg/ml against B. subtilis for methanol extracts [30]. The MIC values reported in the current study were higher against these bacteria which might reflect differences in the chemical composition.

The aqueous solution of Boerhaavia diffusa leaf extract has been reported to decrease blood glucose and increase insulin activity in normal and diabetic rats and possessed good antioxidant activity [40].

The phenolics from Pterocarpus marsupium (marsupin and pterostilbene) lowered the blood glucose levels of hyperglycemic rats [41] and in vivo and in vitro -glucosidase inhibitory activity was found with water extracts of latex [42].

3. Inhibition of -amylase by Australian aboriginal and Indian Ayurvedic plant extracts.

The enzyme inhibition data should be expressed in terms of their IC50.

The authors should ask, if an extract that inhibits an enzyme at high concentrations is an inhibition or a false positive. Values are between 43000 and 326000 µg/ml.

4-There are sections that are not necessary to explain

Pearson’s correlation coefficient between total flavonoids and total phenolic was 0.796 hence we can postulate there is direct relationship between phenolic and flavonoids content.
5. Statistical analysis
All samples were analyzed in triplicate. Data are presented as mean ± standard deviation (SD). Data were analysed by GraphPad Prism Software version 5.0 (GraphPad Software Inc., San Diego, USA)

There are no references in the text on the statistical analysis of data

The authors should rewrite the work, eliminating the very high values of the various tests. Control compounds should be included in all trials.

Major Compulsory Revisions

**Level of interest:** An article of limited interest

**Quality of written English:** Needs some language corrections before being published

**Statistical review:** Yes, and I have assessed the statistics in my report.

**Declaration of competing interests:**

I declare that I have no competing interests