Reviewer’s report

**Title:** Metabolic Markers and Microecological Characteristics of Tongue Coating in Patients with Chronic Gastritis

**Version:** 3  **Date:** 24 March 2013

**Reviewer:** Shao Li

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Sun et al. reported a work about metabolic markers and microecological characteristics of tongue coating in a group of patients with chronic gastritis by using metabonomics and microbiological techniques. They found that changes in glucose metabolism can be one of the bases of tongue coating formation in patients with chronic gastritis. Tongue coating indicates a close relationship between the body energy metabolism and intestinal microflora changes. This work is very interesting; however, the following points should be well addressed before the paper can be considered for publication.

1. The investigation was performed on the chronic gastritis group (70 cases) and the normal controls (20 cases). It is well known that TCM doctors always use tongue coating as a very important index to determine the TCM Syndromes of patients. However, it is not clear whether the chronic gastritis patients in this study suffered from different Syndromes with different tongue coating. I suggest that the TCM Syndromes should be taken into consideration in this work.

2. Authors used both metabonomics and microbiological techniques to determine the biological basis of tongue coating in chronic gastritis patients. They should clarify the scientific logic of the connection of both metabonomics and microbiological techniques as well as both human body and micro ecological conditions.

3. In page 7, authors claimed that they performed bacterial genomic DNA extraction for 20 normal controls and 20 patients with the thickest and greasiest tongue coating. They should clarify why and how to select the cases from 70 patients and also show some details about the tongue coating of the other 50 cases.

4. There are some related studies on the biological basis of the TCM Syndrome in chronic gastritis patients as well as patients’ tongue coating. For example,” Integrating next-generation sequencing and traditional tongue diagnosis to determine tongue coating microbiome. Scientific Reports 2012;2:936”, “Imbalanced network biomarkers for traditional Chinese medicine Syndrome in gastritis patients. Scientific Reports 2013;3:1543”. The manuscript would benefit from citing these closely related studies and discussing the results with them.

5. English and clarity throughout the text should be improved significantly.
6. The Chinese characters in Fig5. should be presented in English.

**Level of interest:** An article of importance in its field

**Quality of written English:** Not suitable for publication unless extensively edited

**Statistical review:** Yes, but I do not feel adequately qualified to assess the statistics.