Reviewer’s report

Title: In vivo antimalarial activity of the crude leaf extract and solvent fractions of Croton macrostachyus (Euphorbiaceae) against Plasmodium berghei in mice

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Reviewer: Ezekiel. Olugbenga IWALEWA

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Review of BMC Complementary and Alternative Medicine manuscript
When assessing the work, the following points were considered:

1. The question posed by the authors at investigating the in vivo antiplasmodial activity of 80% methanol extract and solvent fractions of the leaves of Croton macrostachyus H. in rodent model of malaria was well defined.
2. The methods were appropriate and excellently described.
3. The data were adequate
4. The manuscript adheres to the relevant standards for reporting and data deposition.
5. The discussion and conclusions well presented, balanced and adequately supported by the tables and data.
6. Limitations of the work are NOT clearly stated.
7. Yes, the authors clearly acknowledge any work upon which were cited
8. Yes the title and abstract accurately convey what has been found.
9. Yes wonderfully acceptable

- Minor Essential Revisions
1. Introduction: In 5th paragraph of the introduction which reads:
The lipophilic extracts of Croton macrostachys is reported to have high antileishmanial activity (EC50< 3 µg/ml), low cytotoxicity and weak hemolytic effects [11]. The ethyl acetate extract of the stem bark [12] as well as the methanol and dichloromethane extracts of the leaves and stem bark [13, 14] of the plant have been demonstrated to possess significant antibacterial and antifungal activities. An in vitro study of the fruit extract of the plant indicated that the plant has a good antiplasmodial activity, with IC50 of 0.94 µg/ml [15]. Moreover, the methanol leaf
extract of Croton macrostachyus exhibited a larvicidal activity against late third instar larvae of Anopheles arabiensis Patton, a potent malaria vector in Ethiopia [16].

5. Conclusions
The results obtained from the present study revealed that the crude extract prevented the reduction of weight and rectal temperature which is associated with increasing parasitemia, while it didn’t significantly prevent PCV reduction. Survival time of the extract treated mice was also significantly prolonged. Fractionation demonstrated that all the three fractions were capable of inducing significant parasite suppression. The chloroform fraction, however, had the highest antimalarial activity followed by the methanol fraction, which suggests that the phytochemicals responsible for antimalarial activity of the plant are non-polar to semi-polar in nature. Further studies are required to determine if the antimalarial activity of Croton macrostachyus is attributable to certain chemical constituents. Meanwhile, the data present evidence to uphold the earlier in vitro findings as well as the claims made by the Ethiopian traditional medicine practitioners.

Recommendations
My advice on publication and recommendation is that if these two explanations be rectified, the paper is recommended for publication. The manuscript exhibited a coherent and show sound scientific knowledge and contributes immensely to the area of interest and the field.

Level of interest: An article of outstanding merit and interest in its field

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'