Reviewer’s report

Title: The mycelium of the Trametes versicolor (Turkey Tail) mushroom and its fermented substrate each show potent and complementary immune activating properties in vitro.

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Reviewer: Leo J.L.D. van Griensven

Reviewer's report:

Basically the authors have compared the immunomodulatory activity of T. versicolor present in its mycelium to same of the rice substrate the mycelium had been produced on. As a control the non-inoculated rice substrate was used. Tests were carried out in activated human blood cells positive for CD69 expression. Although used spent substrate is commercialized here and there as a health supplement, it has not been tested for its immunomodulatory effects as far as I know. The present study shows clear immunomodulatory effects of solids(?) remaining in the fermented substrate used for production of T. versicolor after initial water extraction and that show even higher activity than that of the mycelium itself in most cases. The control initial substrate is negative, with a single exception for IFN-g.

What I find most important is that Fig 7 indicates that the fermented substrate after water extraction, the solids, demonstrates considerable IL-1ra and IL-10 induction activity that is not found in the mycelial aqueous fractions. These two cytokines are strongly anti-inflammatory and are not induced by extractable mycelial components but remain in the "solids" after initial water extraction. This merits further research into the nature of the compounds involved as well as into the use of spent fermented substrate. The possibilities seem a bit underestimated by the authors.

The study is well done, its subject is new and original and the results are relevant.

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

Yes

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Yes
Are the conclusions drawn adequately supported by the data shown?
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Yes

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