Response to Professor Bronze

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Dear Editor,

We thank the author for replying (Bronze 2019) to our letter (Paterson and Buddie 2019). The crux of the matter is the list of fungi that produce mycotoxins. It surprises us that there is little awareness of how remarkable these results are and further discussion is in order. More importantly, the author should have repeated the experiment more than once because the results deviate so much from the norm, but we saw no evidence of this. After all, it was not just one fungus producing an unexpected mycotoxin.

Mycotoxin production is dependent on the genetic constitution of the fungi. A species will not produce a particular mycotoxin if it does not have the correct genes, no matter what growth conditions, strains, matrix, and/or media are involved. A vast area of research has been established on the chemotaxonomy of mycotoxin fungi, sometimes using detection of the genes involved in mycotoxin production. The author's reported results would be sufficiently noteworthy as to require gene sequencing where possible, to ascertain the genetic basis for an ability that has not been reported previously. As such, if you could elucidate the sequences, your paper would warrant greater prominence. However, we do suspect that if this was undertaken it would show that the genes were absent.

Finally, we refer to the partial sentence, "Six fungi species (*Aspergillus terreus*, *Aspergillus niger*, *Aspergillus fumigatus*, *Fusarium foetens*, *Cunninghamella bertholletiae*, and *Purpureocillium lilacinum*) were selected to conduct this

experiment due to their reported occurrence in water, ability to produce mycotoxins, and reported pathogenicity...." This is ambiguous. It reads as all the fungi mentioned occur in water AND produce mycotoxins AND are pathogenic (to humans?). Is that what the author meant to say? The paper is about mycotoxins so why include pathogens? Pathogens are irrelevant to this paper which is about mycotoxins and introducing them only serves to "muddy the water."

We mention these points so that there will be less confusion in the scientific community about which fungi produce mycotoxins, but also to enable the author to modify any future experimentation.

Thank you for the opportunity to express our views.

Yours faithfully,

Russell Paterson and Alan Buddie

References

- Bronze MR (2019) Subject: reply to letter to the Editor (ESPR-D-18-05279) about our manuscript. Environ Sci Pollut R 26:13677–13678
- Paterson RRM, Buddie A (2019) Your mycotoxins in water paper. Environ Sci Pollut R 26:1–3

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