March 11, 2020

Ref: MS No.: soil-2019-50. Title: Adsorption to soils and biochemical characterization of purified phytases.Maria Marta Caffaro et al.

Topical Editor SOIL Journal

Dear Dr Jeanette Whitaker

We would like to thank you for your valuable suggestions The detailed responses and changes made to the original manuscript are given below and included in the new manuscript. Changes are highlighted in yellow. If additional modifications are required, please let us know.

Regards,

Dr. Gerardo Rubio
School of Agriculture - University of Buenos Aires

……

Detailed response to the Editor and the reviewers:

1. Title, reviewer 2 indicated the title needed changing and you have suggested an alternative. It seems from your discussion that replacing purified phytases with either "phytate-degrading enzymes" or "commercial phytases" would clarify the scope of the paper.

R: OK

New title read as:

“Adsorption to soils and biochemical characterization of purified commercial phytases”

…..

2. The abstract needs 1 or 2 sentences at the beginning to explain the context of the study, why is this study necessary and what is the relevance, before you go into the methods and what you have done.

R: OK. New abstract starts as:

“Commercial phytases are widely used in poultry production, but little is known about their potential use as biofertilizer for agricultural crops as an alternative to reduce the use of synthetic fertilizers”

…..

3. You have two hypotheses in the introduction, but these are not referred to again until the conclusions section. I would like to see them referred to in the methods and results/discussion sections so it is clear how your experiments test these two hypotheses.

R: Good point, done.

New M&M line 80 read as:

“To test hypothesis ii), soil samples (0-20 cm) were taken from…”

New M&M line 102 read as:

“To test hypothesis i), we performed the biochemical characterization of four purified phytases. This characterization included:…”

New R &D line 160 read as:

“ Obtained results did not support the proposed second hypothesis, since the retention of phytases by the soil solid phase did not have a clear association with the analyzed soil properties, including the soil clay content. Therefore, it was possible to fit a single model after pooling the data of the seven sites (Fig. 1).”

And line 173:

“However, it should be taken into account that the seven Mollisols used in this work did not have a wide range of textures.”

New M&M line 204read as:

“The proposed hypothesis i) is.therefore only partially accepted since although all four purified phytases had the ability to use the three substrates, they released more P from p-nitrophenyl-phosphate than from phytic acid..”