

# **Response to Eder Martins**

*The article offers a significant contribution to the use of ground volcanic rocks in managing soil fertility for maize production in Cameroon.*

**Answer:** Dear Sir, thank you much for your kind words and suggestions which substantially improved the quality of our manuscript.

*Alternative title: Effect of trachyte and basalt powder on maize (Zea Mays L.) growth and yield in Cameroon's Sudano-Sahelian zone (Central Africa)*

**Answer:** Suggestion adopted

*Line 35 : and use of chemical fertilizers*

**Answer:** the expression was replaced by " and excessive use of synthetic fertilizers"

*Line 55: The term "rock powder" is quite general and can refer to various materials. In agriculture, "rock powder" can include limestone-based or phosphate-based materials, among others. Recently, rock powders derived from base-rich silicate rocks has been utilized in the process of soil remineralization. Therefore, it is crucial to specify the type of "rock powder" being discussed to ensure clarity and proper application.*

**Answer:** the expression "rock powders derived from base-rich silicate rocks" was adopted in lines 57-58

*Lines 58-59: silicate rock powders*

**Answer:** Suggestion adopted in line 60

*Line 85-86: local silicate rock powders, or soil remineralizers*

**Answer:** Suggestion adopted Suggestion adopted in Lines 88 – 89

*Line 116: In Figure 1 it is appropriate to indicate in (b) the area shown in (c).*

**Answer:** Suggestion adopted

*Line 120: three (03) replications, resulting in twenty-four (24) experimental plots*

**Answer:** the expression was replaced by "four replicates, resulting in twenty four plots (6 x 4)"

*Line 126: It was unclear when the rock and synthetic fertilizer treatments were applied. Were all treatments administered six weeks prior or after to planting?*

**Answer:** The rock powder treatments were applied immediately after sowing, while the NPK fertilizer treatments were applied two weeks after sowing. These details are provided in the Table 2.

*Line 128: The experimental design shows four replicates instead of three.*

**Answer:** "three" was replaced by "four" (line 130)

*Line 129: I suggest that in a future experiment, a treatment be implemented using a mixture of trachyte (which is richer in potassium and lower in calcium and magnesium) and basalt (which is richer in calcium and magnesium and lower in potassium) be applied. These rocks have complementary compositions and may provide synergistic agronomic effects.*

**Answer:** These remarks will be taken into consideration in future works. Thank you very much for your remark and suggestion.

*Lines 135-136: It is essential to present the granulometric distribution of the ground rocks or, at the very least, indicate the proportions of the fractions passing through 0.84 mm, 0.3 mm, and 0.15 mm sieves. This is fundamental because the reactivity of the particle size fractions plays a critical role in their interactions within the rhizosphere, as discussed in the text.*

**Answer:** the proportions of different fractions passing through 0.80mm, 0.25 mm, and 0.10 mm sieves were added in the methodology in lines 151-152

*Line 237: Wouldn't this matrix be rich in low crystallinity minerals?*

**Answer:** Dear Sir, thank you very much. Volcanic glass is always present in all volcanic rocks. The following sentence was added in the text in lines 258-259: "Microliths and volcanic glass constitute the groundmass of basalts and trachytes".

*Line 255: Table 3. b.d.l: below detection limit?*

**Answer:** This information was added below the Table.

*Line 368: The evaluation of the physical-chemical characteristics of the soil following the maize harvest was lacking. Significant changes may arise for subsequent crops, particularly with rock treatments.*

**Answer:** Dear Sir, thank you very much for your remark. Soil samples were collected after the maize harvest and sent for laboratory analysis. The results are not yet available and will be considered in future studies to check changes which may arise.

*Line 512: adjust font size*

**Answer:** done in line 540

*Lines 562-564: contribution to the development of regional solutions for soil fertility management, contrasting with the dependency on synthetic fertilizers produced in the Northern Hemisphere, to which tropical countries are reliant.*

**Answer:** Dear Sir, thank you very much for your suggestion. This information was added at the end of the conclusion.

*Lines 562-564: In addition to urea, biological nitrogen fixation processes play a crucial role. In the case of maize, free-living nitrogen-fixing microorganisms, such as Azospirillum brasilense, contribute to this process. The experiment did not elucidate the role of phosphorus level in the agronomic response.*

**Answer:** Information was added at the end of the conclusion as perspectives for future research.