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Figure Captions

Figure 1. Conceptual diagram of different phases (left) in a biochar-amended soils and their relationship (right) (H: Total height of sample, H_S: Height of solid, H_b: Height of biochar, H_W: Height of water and H_V: height of voids). The biochar will itself have a significant internal porosity.

Figure 2. A comparison of dry bulk density (ρ_d) after maximum loading under different soil types (a) and moisture contents (b). S1 and S2 represent two soil types used in the study and W1 and W2 represent 10 and 22% w/w soil moisture, respectively. The error bars represent standard error of means. Please refer to Table 1 for the statistical results.

Figure 3 (a-f). Biochar exclusive (e) and inclusive void ratio (e_b) after loading and unloading tests; the data from 0 and 10% biochar are presented here for S1W1 (a&b), S2W1 (c&d) and S2W2 (e&f). S1 and S2 represent two soil types used in the study and W1 and W2 represent 10 and 22% w/w soil moisture, respectively.

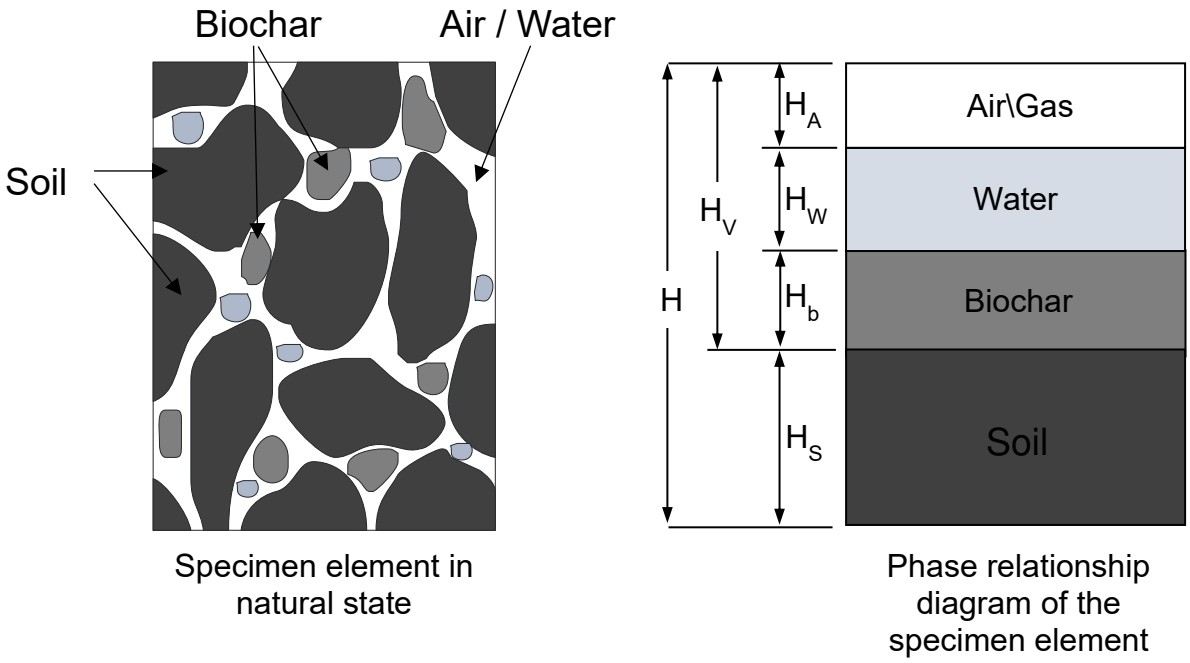
Figure 4 (a-c). The relationships between biochar inclusive void ratio (e_b) and applied load for S1W1 (a), S2W1 (b) and S2W2 (c). S1 and S2 represent two soil types used in the study and W1 and W2 represent 10 and 22% w/w soil moisture, respectively.

Figure 5. Compression index (C_c) of biochar-amended soils for different soil types (a) and moisture contents (b). S1 and S2 represent two soil types used in the study and W1 and W2 represent 10 and 22% w/w soil moisture, respectively. The error bars represent standard error of means. Please refer to Table 2 for the statistical results.

Figure 6. The relaxation ratio (R) obtained for 0, 2 and 10% biochar additions under S1W1 (a), S2W1 (b) and S2W2 (c) under different loading.

Figure 7. Average relaxation ratio (R) across the loading range (0-800kPa) for biochar-amended soils under different soil types (a) and moisture contents (b). S1 and S2 represent two soil types used in the study and W1 and W2 represent 10 and 22% w/w soil moisture,

respectively. The error bars represent standard error of means. Please refer to Table 3 for the statistical results.



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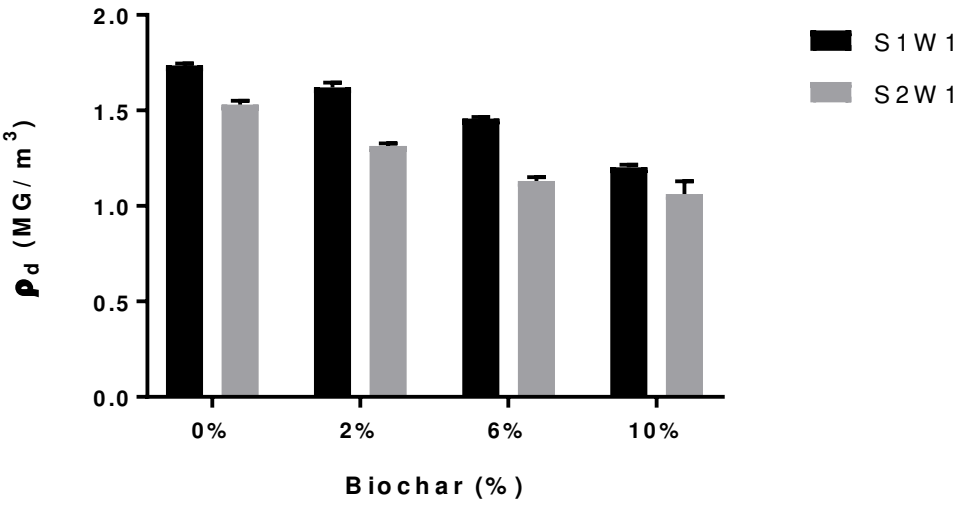
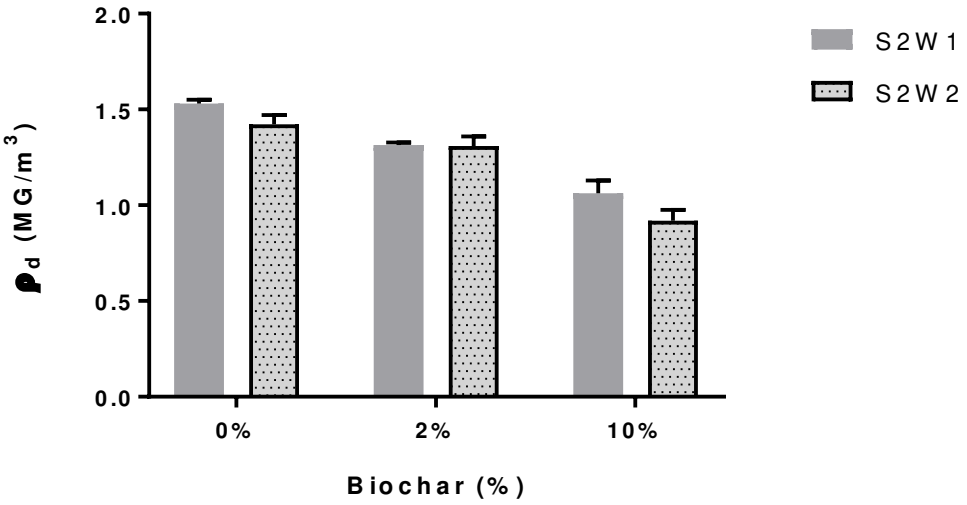


(a)



(b)

Figure 2: A comparison of dry bulk density (ρ_d) after maximum loading under different soil types (a) and moisture contents (b). S1 and S2 represent two soil types used in the study and W1 and W2 represent 10 and 22% w/w soil moisture, respectively. The error bars represent standard error of means. Please refer to Table 1 for the statistical results.

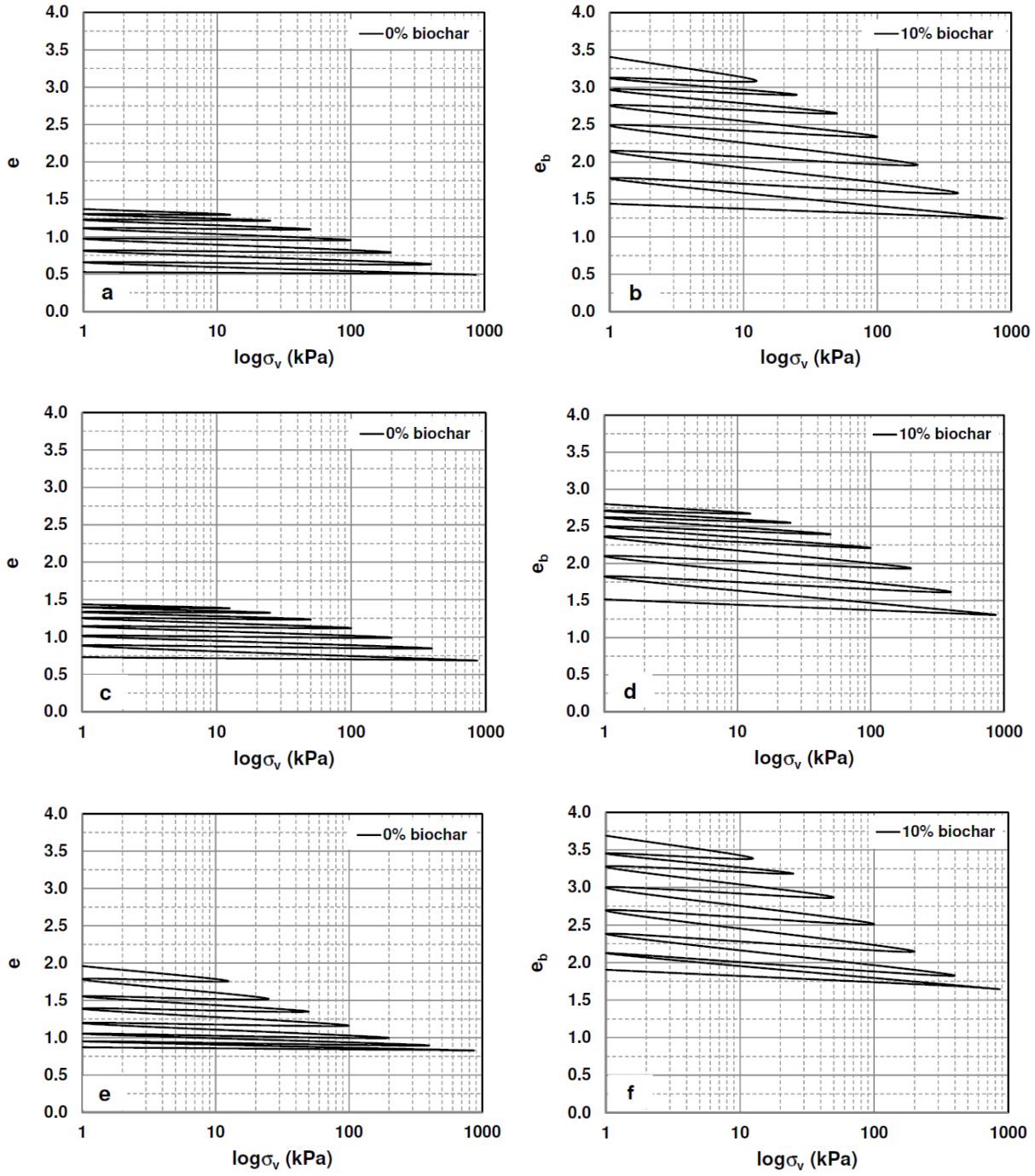
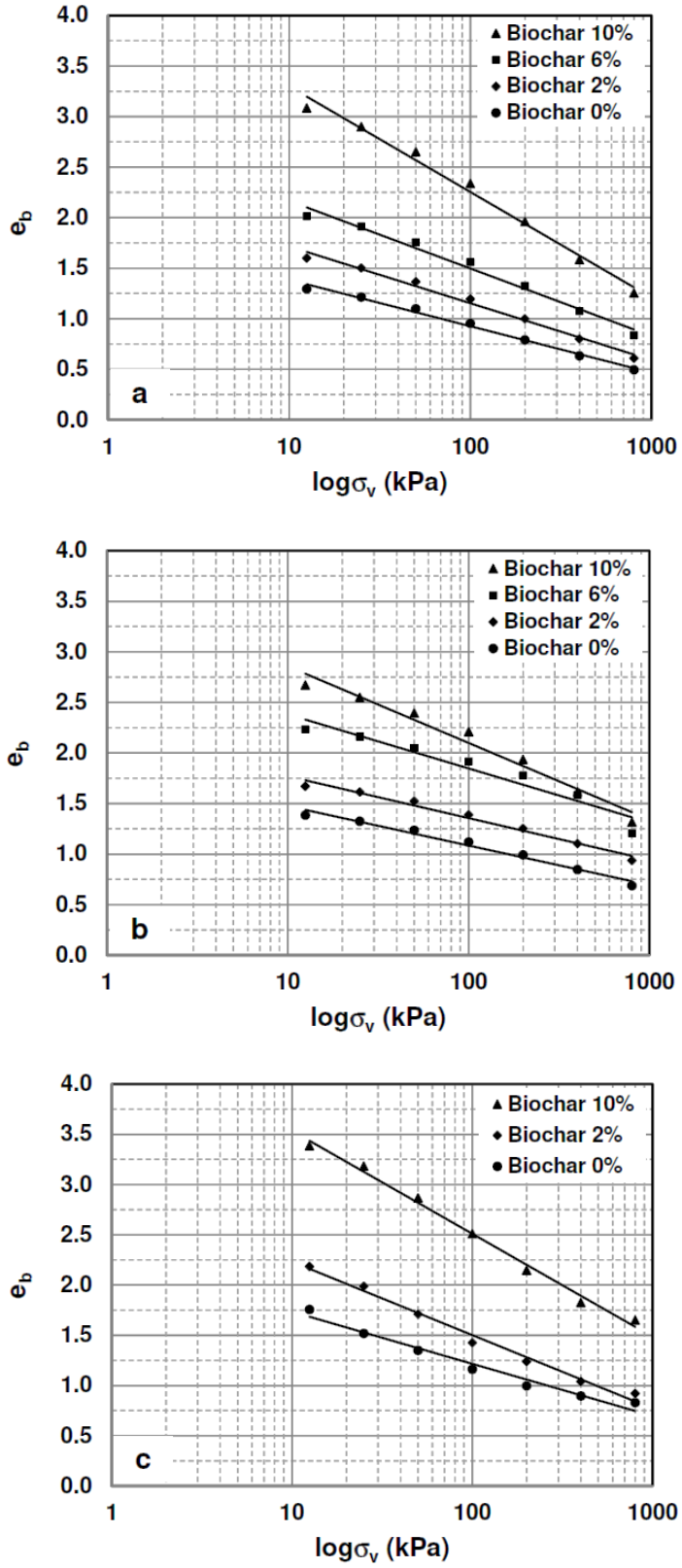


Figure 3 (a-f): Biochar exclusive (*e*) and inclusive void ratio (e_b) after loading and unloading tests; the data from 0 and 10% biochar are presented here for S1W1 (a&b), S2W1 (c&d) and S2W2 (e&f). S1 and S2 represent two soil types used in the study and W1 and W2 represent 10 and 22% w/w soil moisture, respectively.



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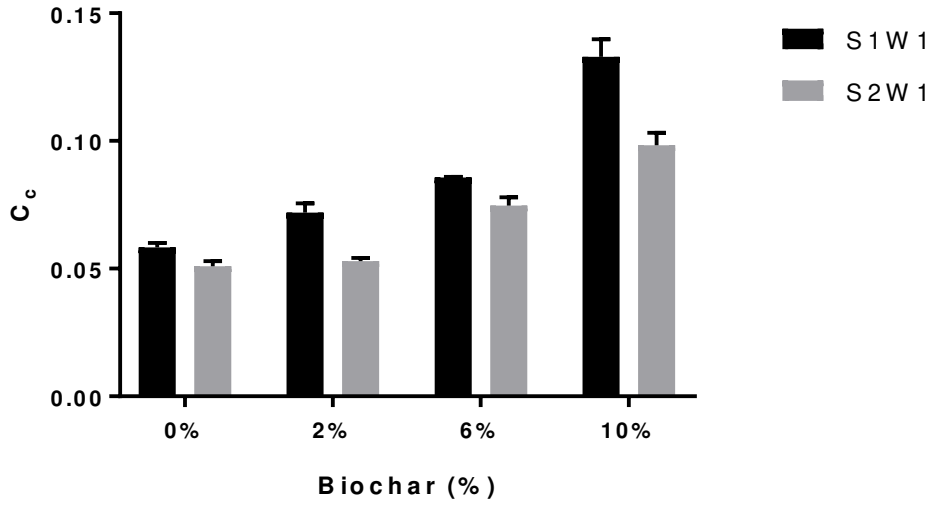
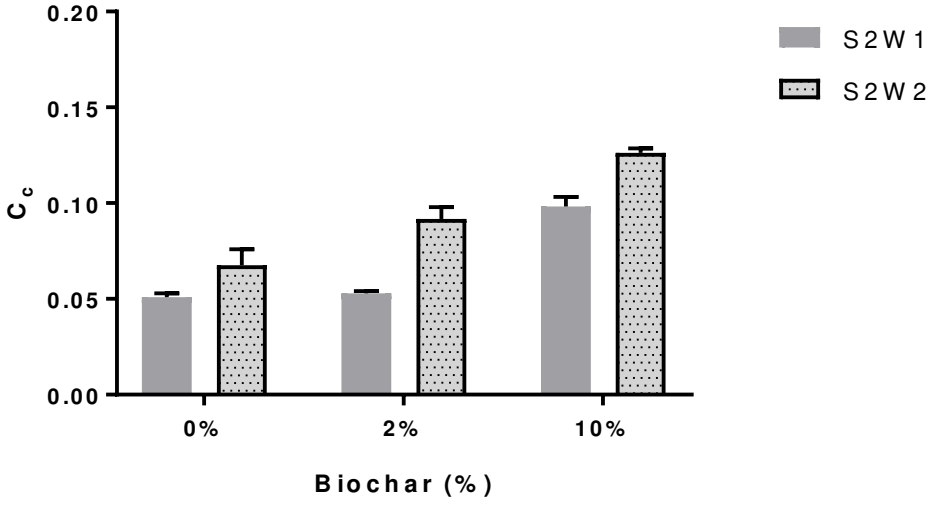


(a)



(b)

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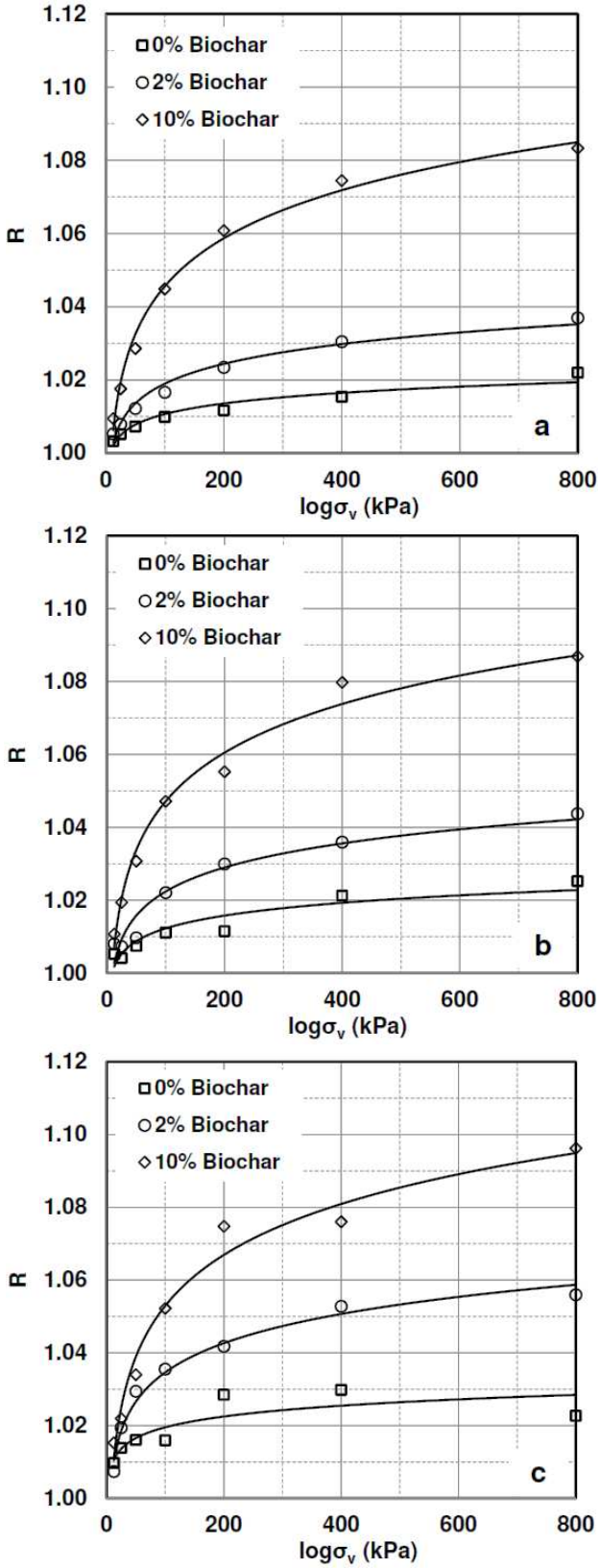

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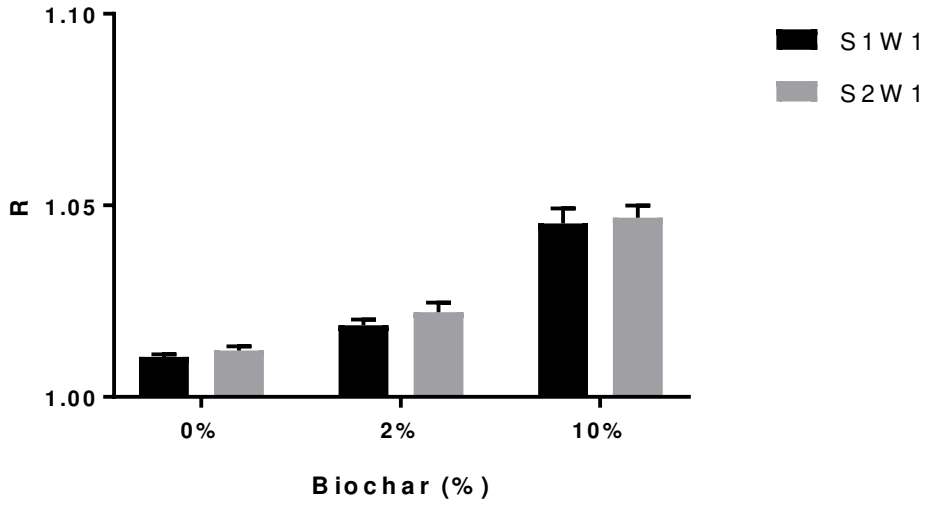
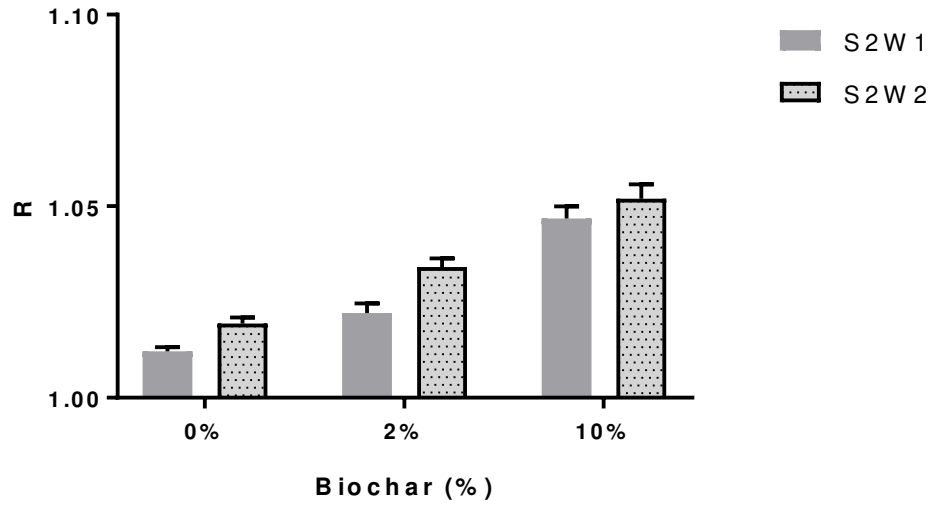


(a)



(b)

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