



Gliricidia sepium seedlings development due to biochar and manure application

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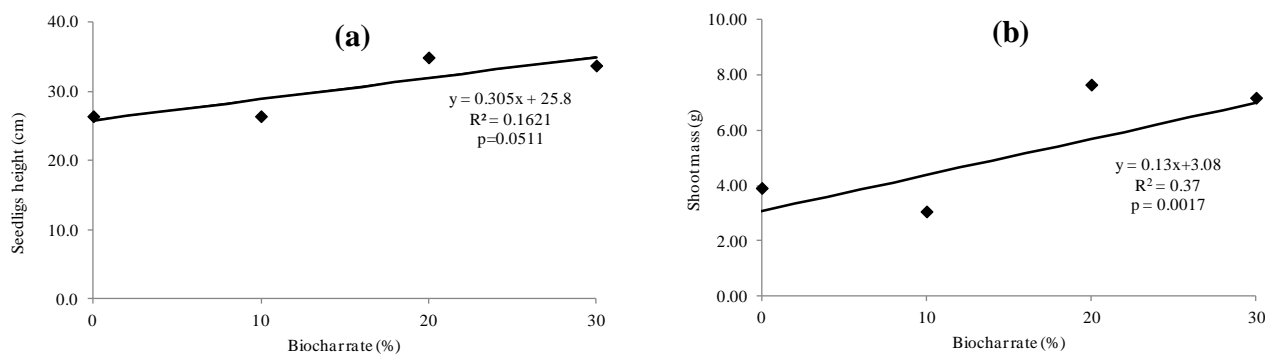
Introduction *Gliricidia sepium* has been used for animal feed in Brazilian Semi-arid and is an important component of crop-livestock-forest systems in this region (Voltolini et al., 2011; Sá e Sá, 2006). Biochar can be used as a soil conditioner to improve chemical, physical and biological attributes of soil and can also be used as a substrate to seedlings. Our objectives were to evaluate effects of biochar on *Gliricidia sepium* seedlings development.

Material and Methods

The experiment was installed at Embrapa Semi-arid, in Petrolina, Pernambuco state, Brazil. Treatments were distributed in a factorial scheme (4 x 2), with four rates of biochar (0%, 10%, 20%, 30% volume/volume), with and without goat manure, that were mixed to an Oxisol and used as a substrate for *Gliricidia sepium*. Treatments were distributed in a randomized design, with three replicates. Soil, biochar and manure were mixed and used to fill plastic bags (11.5 x 29.5 cm). Three seeds of *Gliricidia sepium* were sown in each bag and eight days after sowing two of them were eliminated. Sixty days after sowing we evaluated seedlings height and root and shoot dry biomass. Results were evaluated by analysis of variance. Means were compared by Tukey and when biochar effects were significant we used regression analysis.

Results and Conclusions

Fig. 1. *Gliricidia sepium* seedlings height (a) and shoot biomass (b) due to different rates of biochar. Data are means of 3 replicate plots.



Interaction between biochar and manure for height and shoot biomass were not significant. Manure had effect just on seedlings height, despite seedlings without manure were higher (35.2 cm) than those with manure (25.5 cm). Increasing biochar increased both height and shoot mass of seedlings. Biochar can be used as an additive to increase the development of *Gliricidia sepium* seedlings and its effects are better than those of goat manure. This information could be used for the production of seedlings for the implementation of livestock-forest systems in Semi-arid region.

References cited

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Acknowledgements

To Embrapa and CNPq.