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Arthrospira maxima hydrolysate as a high value biofertilizer in basil (*Ocimum basilicum*) seedlings

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Online Resource 2

Three mechanical lysis methods were tested: ultrasonication, freezing, and glass beads. For the ultrasonication assay, three power settings (300, 350, 400 W) were tested on 18 samples (Figure 2). For the glass beads assay, two diameters (0.5 and 4 mm) were compared on 18 samples each (Figure 3). For the freezing assay, two drying treatments were compared on 20 samples each, shade dried vs. sun dried (Figure 4). Efficiency of cell lysis was determined through measurement of soluble protein using Lowry protein assay (Lowry et al., 1951). Optimal conditions of each assay are compared in Table 1.

Table 1 Summary of results of cell rupture methods.

Cell Lysis Method	Optimal Conditions	Maximum Soluble Protein (%)	Increase in soluble protein (%)
Ultrasound	15 minutes, 400 W	57.02 ± 1.16	22.19
Freezing	120 hours	27.82 ± 0.49	13.04
Glass Beads	10 minutes, 4mm diameter	22.98 ± 0.20	2.46

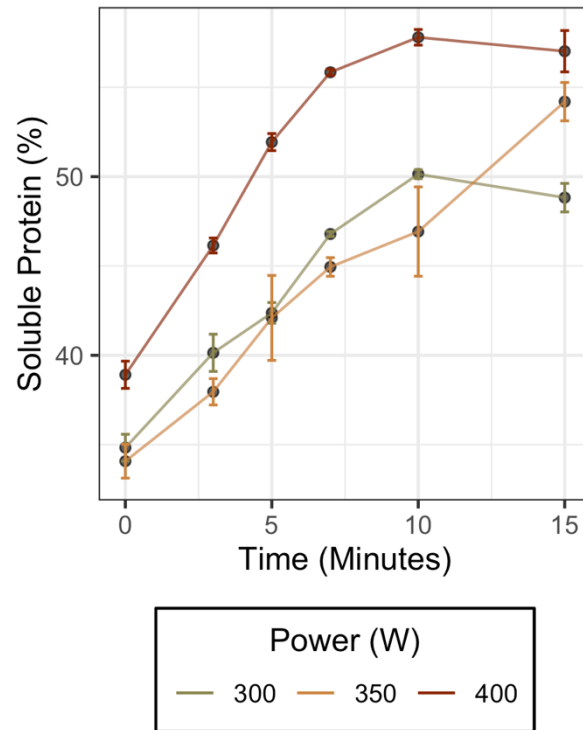


Fig. 1 Effect on soluble protein content: Ultrasound lysis at different powers and operation times

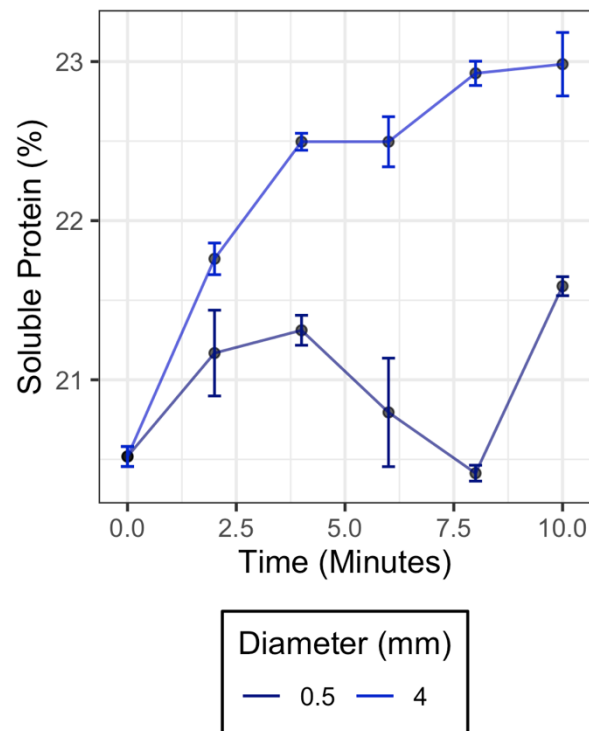


Fig. 2 Effect on soluble protein content: Glass beads lysis at different bead's diameters and operation times

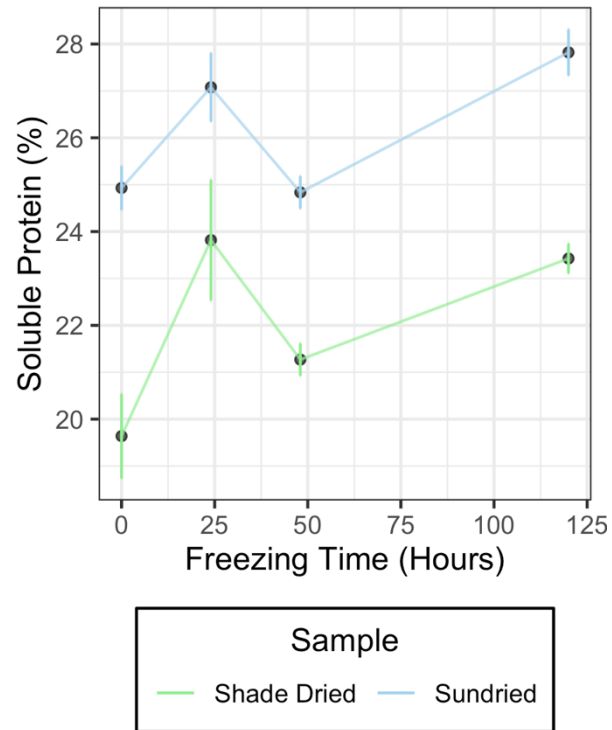


Fig. 3 Effect on soluble protein content: Freezing lysis at different operation times for shade dried and sundried biomass.

REFERENCES

Lowry OH, Rosebrough NJ, Farr AL, Randall RJ (1951) Protein measurement with the Folin phenol reagent. *J Biol Chem* 193:265–275. [https://doi.org/10.1016/s0021-9258\(19\)52451-6](https://doi.org/10.1016/s0021-9258(19)52451-6)