**Blastocladiella emersonii** Possesses Three Small Heat Shock Proteins That Are Highly Induced in Response to Heat Shock

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Small Heat Shock Proteins (sHSPs) are one of the least well understood classes of molecular chaperones, proteins which act to prevent or reverse improper protein associations. The importance of the sHSPs is evidenced by their almost ubiquitous expression, the presence of multiple sHSP genes in most organisms, and their dramatic up-regulation under stress conditions making them among the most abundant of cellular proteins. sHSPs have a molecular weight between 15 and 40 kDa and share a conserved domain of 80 to 100 amino acids called the Alpha Crystallin Domain (ACD). To improve our knowledge about sHSP family in *B. emersonii*, we performed a search for members of the small heat shock family in this fungus. We observed three proteins corresponding to this family, named BeHsp16, BeHsp17 and BeHsp30. The amino acid similarity among *B. emersonii* sHSPs is focused to the ACD, as expected in proteins from this family. Interestingly, when we performed a protein comparison of BeHsp17 against NCBI database, we observed that this protein presents similarity only with sHSP from plants. We previously observed that *B. emersonii* possesses some genes that were lost in other fungi but are present in plants or animals. To verify if these sHSPs are differentially expressed during the life cycle of *B. emersonii* and/or induced in response to heat shock, we carried out real time PCR assays. We observed that BeHsp16, BeHsp17 and BeHsp30 mRNA levels are maintained low during sporulation, but they are highly increased when cells are exposed to heat shock. These data suggest that BeHsp16, BeHsp17 and BeHsp30 proteins are important for the heat shock response in *B. emersonii*.


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