

β -glucan elicitor from *Schizophyllum commune* induces expression of defense genes and protective effect against Phytophthora blight disease of pepper

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Mushroom, *Schizophyllum commune* is a white wood-rotting fungi and produce a large of β -glucan on culturing. The β -glucan has industrially been used as cosmetics and medicines for enhancing immunity. This study was to investigate the availability of culture filtrate of *S. commune* (Sc-cf) on controlling Phytophthora blight disease of pepper. Sc-cf was precipitated by absolute ethanol and the precipitant and supernatant fractions inhibited mycelial growth of different phytopathogenic fungi including *Phytophthora capsici*, *Rhizoctonia Solani*, *Pythium ultimum*, *Botrytis cinerea* and *Colletotrichum acutatum*. The high content (16.88 g/100g) of β -glucan was detected in the precipitant, polysaccharide. The Sc-polysaccharide suppressed Phytophthora blight disease of pepper seedlings more than 60 %. In quantitative real-time PCR, the gene expression of *CaBPR1* (PR protein 1), *CaBGLU* (β -1,3-glucanase), *CaPR-4* (PR protein 4), and *CaPR-10* (PR protein 10) were significantly induced on the Sc-polysaccharide and DL- β -aminobutyric acid (BABA) treated pepper leaves. In addition, the salicylic acid (SA) content was also increased in the Sc-polysaccharide treated pepper samples. These results suggest that β -glucan from *S. commune* can be used as an elicitor for the control of Phytophthora blight disease of pepper.