

Identification of inhibitory peptide against microtubule formation from *Phytophthora capsici*

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Abstract

Phytophthora blight of pepper is a completely destructive plant disease caused by the oomycete pathogen *Phytophthora capsici*. *Phytophthora* disease is responsible for major losses in pepper production and the pathogen can survive in soil in the absence of the host plant for many years.

Microtubules have several key roles that are important in cell proliferation, trafficking, signaling and migration in eukaryotic cells. Because of these reasons microtubule is an attractive target of antifungal agent.¹⁾

In this study, we cloned and purified alpha and beta tubulin from *Phytophthora capsici*. And then we screened alpha and beta tubulin binding peptides by M13 phage display method. After five rounds of biopanning, we identified *P.capsici* alpha and beta tubulin binding peptides from a random peptide library that showed high binding affinity toward *P. capsici* alpha and beta tubulin in the picomolar range. Among these peptides, some peptides show inhibition of microtubule formation. We determined the IC50 value. These peptides can be potent inhibitor of *Phytophthora capsici*.

References

- [1] Kavallaris, M., Nat Rev Cancer, **3** (2010) 194-204.

Figures