

INFORMATION ON DOCTORAL THESIS

1. Full name: TRINH THI VAN ANH
2. Sex: Female
3. Date of birth: 21/12/1986
4. Place of birth: Bac Ninh
5. Admission decision number: No. 220/QĐ-CNSH dated on 05/12/2016 by Director of Institute of Microbiology and Biotechnology
6. Changes in academic process: Extend study period (decision number: No. 263/QĐ-CNSH date on 13/11/2019 and No. 308/QĐ-CNSH date on 31/12/2020 by Director of Institute of Microbiology and Biotechnology)
7. Official thesis title: Study on antifungal activities and their plant defense eliciting ability on tomato (*Solanum lycopersicum*)
8. Major: Biotechnology
9. Code: 9420201.01
10. Supervisors: Assoc. Prof. Dr. Duong Văn Hợp
Prof. Dr. Jacques Dommes
11. Summary of the new findings of the thesis
 - Produced COS samples with degree of polymeration (DP) ranging from 2-10 using chitinases from *Streptomyces macrosporeus* VTCC 940003 and *Beauveria bassiana* VN10-F1103 filamentous fungi, completely soluble in water.
 - Evaluated the difference in inhibitory ability due to difference in composition of COSA and COSB against plant pathogenic fungi *B. cinerea* and *F. Oxysporum*.
 - Proved the ability of COSA to stimulate systemic resistance in tomato (*S. lycopersicum*) against the plant pathogenic fungus *B. cinerea*.
12. Practical applicability, if any: COSA prepared by hydrolyzing chitosan using chitinase from *Streptomyces macrosporeus* VTCC has considerable resistance to *B. cinerea* and *F. oxysporum*. Therefore, COSA has great potential in application as environmentally-friendly pesticides, safe for humans and animals.

13. Further research directions, if any

- Study on the resistance of COSA against some other plant pathogenic fungi such as *Phytophthora* sp., *Sclerotinia* sp., *Rhizoctonia* sp. ...v.v as a potential for the application of COSA as a biological fungicide in organic agriculture.

- Trial the antifungal activity of COSA in the field to analyze the actual effectiveness on some fruit and vegetable crops and industries such as tomato, grape, banana, cocoa, coffee, etc.

14. Thesis-related publications:

[1] **Anh, T. T. V.**, Uyen, N. Q., Hop, D. V., Dommès, J., Versali, M. F., & Vinh, H. V. (2021), “Chito-oligosaccharide production by chitinase of *Streptomyces macrosporeus* VTCC 940003 and their inhibition activities on *Botrytis cinerea*”, *European Journal of Plant Pathology*, 161(1): 185-193.

[2] **Anh, T. T. V.**, Uyen, N. Q., Hong, N. N., Lam, D. T., & Vinh, H. V. (2021). Preparation of *Fusarium oxysporum*-inhibiting chito-oligosaccharide by chitin/chitosan-hydrolyzing enzyme from actinomycetes. *Vietnam Journal of Biotechnology*, 19(4), 765-770.

[3] Vinh, H. V., **Anh, T. T. V.** (2021), *Chito-oligosaccharides (COS) production by hydrolyzing chitosan using chitinase*, Patent accepted 04/29/2020 by Intellectual Property Office of Vietnam, published in 06/25/2021 on Industrial Property Official Gazette No. 399A.

[4] Vinh, H. V., **Anh, T. T. V.** (2020), *Production of chito-oligosaccharides (COS) from shrimp shells using microbial technology*, Patent accepted 06/22/2020 by Intellectual Property Office of Vietnam, published in 08/25/2020 on Industrial Property Official Gazette No. 389A.

Date:12/26/2022

Supervisor

PhD Student

Assoc. Prof. Duong Van Hop

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