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LIST OF ABBREVIATIONS

ANOVA	analysis of variance
CRD	completely randomized design
DNA	deoxyribonucleic acid
EtOAc	ethyl acetate
HPLC	high performance liquid chromatography
IMA-2	inhibitory mold agar-2
ISP	International Streptomyces Project
LSD	Least significant difference
MeOH	methanol
MIC	minimum inhibitory concentration
PCR	polymerase chain reaction
PDA	potato dextrose agar
pH	potential of Hydrogen
PIRG	percent inhibition of radial growth
rpm	rotation per minute
rRNA	ribosomal ribonucleic acid
S.	*Streptomyces*
sp.	species (singular)
v/v	volume by volume

LIST OF SYMBOLS

p	calculated probability
cm	centrimeter
°C	degree Celsius
g	gram
h	hour
l	liter
µg	microgram
mg	milligram
ml	milliliter
min	minute
%	percent
±	plus-minus

GLOSSARY

DDBJ	DNA Data Bank of Japan: Center collects nucleotide sequence data as a number of International Nucleotide Sequence Database Conllaboration (INSDC) and provides freely available nucleotide sequence data and supercomputer system, to support research activity in life science.
EMBL	European Molecular Biology Laboratory is one of the world's leading research institutions, and Europe's flagship laboratory for the life sciences.
GenBank	The GenBank sequence database is an open access, annotated collection of all publicly available nucleotide sequences and their protein translations. GenBank and its collaborators receive sequences produced in laboratories throughout the world from more than 100,000 distinct organisms.

ข้อความแห่งการริเริ่ม

1) พืชกลุ่มผักกาด เป็นกลุ่มพืชที่มีความสำคัญของสกุล Brassicaceae โดยส่วนมากแล้ว พืชในสกุลนี้เป็นพืชผักเขตร้อนที่แพร่กระจายในแถบเอเชีย อาทิเช่น ผักกาดขาว ผักกาด เทอร์นิพ บร็อคโคลี่ กะหล่ำดอก และคะน้า พืชในกลุ่มนี้เป็นพืชเศรษฐกิจที่สำคัญทางการเกษตรและนิยมบริโภคกันอย่างกว้างขวาง ในประเทศไทยพืชผักในกลุ่มนี้โดยเฉพาะในระยะกล้ามักจะถูกเข้าทำลายโดยโรคเน่าคอดิน ส่งผลให้เมล็ดพืชไม่สามารถงอกได้หรือได้น้อย และยังส่งผลกระทบต่อการเจริญเติบโตของพืชผัก ก่อให้เกิดความสูญเสียทางเศรษฐกิจ เชื้อราสาเหตุโรคเน่าคอดิน ได้แก่ *Pythium aphanidermatum*, *Fusarium oxysporum*, *Rhizoctonia solani* และ *Sclerotium rolfsii* เชื้อเหล่านี้สามารถเข้าทำลายได้อย่างขวาง เนื่องจากมีพืชอาศัยกว้าง รวมทั้งยังสามารถอยู่รอดในดินหรือเศษซากพืชได้เป็นระยะเวลานาน

2) การบริหารศัตรูพืชแบบผสมผสาน คือวิธีการจัดการศัตรูพืชที่ใช้การควบคุมหลายๆ วิธีร่วมกัน เพื่อลดปริมาณการใช้สารเคมีลงในการพัฒนาเกษตรแบบยั่งยืน การควบคุมโดยชีววิธีเป็นกลยุทธ์การอาศัยจุลินทรีย์หรือสิ่งมีชีวิตชนิดอื่นในการควบคุมศัตรูพืช อาทิเช่น แมลง วัชพืช รวมถึงโรคพืช ดังนั้นการศึกษาในครั้งนี้จึงสนใจนำเชื้อแอกติโนไมซีสต์เอนโดไฟต์มาศึกษาความสามารถในการควบคุมโรคเน่าคอดินของพืชสกุลผักกาด รวมถึงการพัฒนาชีวภัณฑ์จากเชื้อแอกติโนไมซีสต์เอนโดไฟต์ที่คัดเลือกได้ เพื่อเป็นทางเลือกในการใช้จัดการโรคพืชต่อไป

STAGEMEMT OF ORIGINALITY

1. Brassica is the most important genus of plants in family Brassicaceae. Many of them are temperate crops that distribute in Asia such as Chinese cabbage, cabbage, turnip, broccoli, cauliflower and kale. Those are the economically agricultural crops and commonly used for food. In Thailand, vegetable crops in this genus, particularly in seedling stage, are usually infected by damping-off disease. This disease causes the losing of seed germination and/or plant growth development that contributed to economic losses. Damping-off pathogenic fungi such as *Pythium aphanidermatum*, *Fusarium oxysporum*, *Rhizoctonia solani* and *Sclerotium rolfsii* have a wide host range and long term survival in soil or soilless media.

2. Integrated pest management is the combinations of different management strategies to reduce pests by using natural enemies and minimizing pesticides for developing sustainable agriculture. Biological control is a natural pest control mechanisms that use other organisms for controlling insects, weeds and plant diseases. Therefore, this study interested in studying the antagonistic bacteria, especially endophytic actinomycetes, for controlling damping-off disease of brassica and developing bioproducts from the effective endophytic actinomycetes with the purpose to use as alternative disease management options in the future.