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PART A:

Journal Name:	American Journal of Experimental Agriculture
Manuscript Number:	MS 2012/AJEA/1380
Title of the Manuscript:	<i>Correlation between Resistance of Eggplant and Microorganisms, Enzyme Activities of Soil</i>
Manuscript received on (Date)	
Review comment submitted (Date)	



SDI Review Form 1.5

PART B: Review Comments

	Reviewer's comment	Author's comment <i>(if agreed with reviewer, correct the manuscript and highlight that part and write here 'Corrected'/ if not agreed, give suitable justifications)</i>
General comment:	• This paper deals with the correlation between the resistance level to Verticillium wilt of different eggplant cultivars, the microbial abundance of different classes of microorganisms and the enzymatic activities in the soil of the rhizosphere. It has been shown that a soil of rhizosphere rich in actinomyces, with a high bacteria to fungi ratio and a high actinomyces to fungi ratio were positively correlated with the resistance level to Verticillium wilt of eggplants. Moreover, this resistance level was also positively correlated with catalase, polyphenol oxidase; protease and urease activities. • The Verticillium wilt symptoms were reproduced on various eggplants cultivars and the disease level was measured. The abundance of different class of microorganisms was assessed as well as the activity of several edaphic enzymes according various methods. • The methods used in this study are not the most classical ones and the choices are not always justified. Moreover, the protocols described in the material and methods part are too succinct and do not allow the reader to reproduce the experiment. • The analyses of the results could be more detailed. For example, it would be appreciated that more figures and more statistical values are indicated in the results, especially when differences between two treatments are notified. • It would have been interesting to calculate the correlation between the richness and the diversity of the soil microflora with the level of the enzymatic activity. This would have allowed determining which microbial class had the most efficient enzymatic activity against Verticillium wilt. • In order to confirm the results showed by the correlation studies, the authors could have set up biological assays. For	The methods have been refined. There are better and more classical methods, but the culturable microorganisms are representative, and meaningful on the further study of antagonistic microorganisms. Three tables and one fig. have been added. The relationship between microorganisms and enzyme activity has been analyzed in table 6. At early study of our team, antagonistic strains (bacteria and actinomycetes) were isolated from rhizosphere soil of grafted eggplants, which showed significant inhibitory effects against <i>Verticillium dahliae</i>. So the quantity of culturable microorganisms can be used to estimate the resistance of eggplant.



SDI Review Form 1.5

	example, they could have enriched a soil with actinomyces and could have tested the effect on the resistance level of a susceptible eggplant cultivar grown in this modified soil. • In the discussion, the authors could have had a more critic point of view according their methodology. For example they could have discussed the fact that only the cultivable microorganisms have been taken into account and molecular techniques would have allowed detecting others non cultivable microorganisms. • In a general way, the level of English of this paper is low and it does not allow a total comprehension of the paper. I recommend giving this paper to a native English speaking person for some corrections.	
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Specific comments:	• Replace 'microbial quantity' with 'microbial quantitation' or 'microbial abundance'. • Replace 'enzyme activities' with 'enzymatic activities' or 'activities of the enzymes'. • Is the strain of <i>Verticillium dahlia</i> used in this work, referenced in a database? If so, give the reference number of this strain. • Do not abbreviate Verticillium wilt. • The plural of bacterium is bacteria.	The strain of <i>Verticillium dahliae</i> used in this work, is isolated from diseased eggplant and identified by Mycology Laboratory in our University. So it has no reference number. The abbreviate of "Verticillium" has been revised.
Title and abstract	L1: Replace 'Correlation between Resistance of Eggplant and Microorganisms,Enzyme Aactivities of Soil' with 'Correlation between the Resistance of Eggplant Cultivars, the Microbial abundance and the Enzymatic Activities in the Soil'. L2: add a space between the coma and Enzyme L2: change 'Aactivities' in 'Activities' L5: change 'Microbial' in 'microbial' L7: Change 'Analyse the changes of microorganisms and enzyme activities' in 'Analysis of the changes of microbial and enzymatic activities' L8: Replace 'after inocutated treatment' with 'after inoculation of <i>Verticillium dahliae</i>' L9: Replace 'The plant materials were planted in plastic greenhouse' with 'The plants were grown in a plastic greenhouse' L10: Replace 'the laboratory experiments were taken at Horticulture College' with 'the laboratory experiments were conducted at the Horticulture College' L11: Replace 'during August to November, 2008' with 'from August to November 2008'. L13: Replace 'and classified by the final disease index' with 'and classified according a disease severity index' L14: Replace 'the method of dilution cultivation' with 'the serial dilution method'. L15 and 16: Replace 'the methods of incubating and colourimetry or titration.' with 'spectrophotometry or colorimetric titrations.'	The title has been revised to be "Resistance of Eggplant (<i>Solanum melongena</i> L.) to Verticillim wilt Correlates to Microbial Abundance and Soil Enzyme Activities" These errors were revised as the review suggested.
Introduction	L25: Replace 'The <i>V. dahliae</i>' by '<i>V. dahliae</i>'. L28: Suppress the space before 'Pegg and Brady 2002'	These errors were revised as the review suggested.



SDI Review Form 1.5

	L30: What is meant by 'reconcile'? L35 and 36: Replace 'to define the relative soil characters for disease resistance identification, provided theoretical basis for soil environment management, and defined the direction for integrated management of V. wilt of eggplant.' with 'to define the relative soil parameters for disease resistance determination, to provide theoretical basis of soil environment management, and to define the direction for integrated management of Verticillium wilt of eggplant'.	
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SDI Review Form 1.5

Review of literature (Heading may differ in the case of review paper)		
Materials & methods (Heading may differ in the case of review paper)	- The material and methods part should be more precise. Give more details and describe precisely the protocols. The references of each technique have to be written. - Indicate what kind of controls and how many replicates were set up for each experiment. - Explain briefly each method for measurement of enzyme activities. L39: Replace 'The research group had selected eggplant sources, especially the main cultivars planted in North China.' with 'The research group has selected the main eggplant cultivars grown in North China.' L40: Suppress 'resistant' as all the selected varieties are non resistant. L41: Write 'V. dahliae' in italic L45 and 46: Replace 'V. dahliae isolated from pathogenic eggplant was separated, inoculated and separated again, according to Koch's postulate, and identified by the Mycology Laboratory' with 'A strain of V. dahliae was isolated from a diseased eggplant plant, inoculated to healthy eggplants and isolated again from newly formed symptoms of Verticillium wilt, according to Koch's postulate. The strain was identified by the Mycology Laboratory' L47: Replace 'After 20 days growing at 27 °C, on Potato Dextrose Agar (PDA) culture medium, the colonies were put into sterile distilled water in 250 mL triangular flask shaking for a night.' with 'The colonies were grown at 27°C on PDA during 20 days on Potato Dextrose Agar (PDA) culture medium. Then, they were put into sterile distilled water in 250 mL triangular flask and shake for a night.' L47: indicate the quantity of colonies put into the triangular flasks and the speed of the shaker. Justify the choice of distilled water instead of culture medium to grow the colonies. L48: Replace 'The filter liquid' with 'The liquid culture' L52: Replace 'The plant materials were planted in a plastic	These errors were revised as the review suggested. L 47: The colonies put into the triangular were pure cultured V. dahliae, and shaken at the speed of 100r/min. The mycelial growth of colonies grown in liquid culture medium, was too vigorous, which inhibit the reproduction of spores. This method (Shake in distilled water) can get more spores and is much easier. L54: The "sprouted" means "accelerating germination" Table 1 has been deleted. The detail of methods and references have been added to text. The Gause's synthetic medium is lighter in color, so it's easier to account. And with the addition of K₂Cr₂O₇ solution, the bacteria and fungi were inhibited. Most actinomyces in farmland soil are Strephomyces and Micromonospora, which are aerobic. The Martin's medium contains Rose Bengal, which can inhibit the growth of



SDI Review Form 1.5

	greenhouse' with 'The plants were grown in a plastic greenhouse'. L53: Replace 'during August to November, 2008' with 'from August to November 2008'. L54: What is meant by 'sprouted'? L57: Indicate the provenance of the soil. L57: Indicate how the plants were injured. L58: Indicate the concentration of the <i>V. dahliae</i> inoculum and the way the plants were inoculated. L63: Always write the same way the term 'disease severity index' or 'disease index'. L69 and 70: Make a sentence to list the different resistance types. L69: Add 'DI: disease index'. L73 and 74: Replace 'For each cultivar, 3 plants were selected to take rhizosphere soil, and the soil was mixed well' with 'For each cultivar, the rhizosphere soil of 3 plants was taken and well mixed.' L74: Do not write numbers at the beginning of a sentence. Replace ' 10g rhizosphere soil was weighted' with 'Ten grams of rhizosphere soil were weighted' L75 and 76: indicate the different concentrations of soil prepared for the serial dilution method. L76: Indicate how the soil was dried. L76: What is meant by 'work out'? L76: Replace 'the microbial quantity of every gram dry soil' with 'the microbial abundance in each sampled soil' L77: the plural of medium is media. L77: The table 1 is not needed. Composition of media can be written in the text as well as the relative references. L78 and 79: More details are needed to explain the protocol for the most probable number method. Precise which indicator dye, which mathematic table were used, etc. L79 and 80: Replace 'The dilution method of plate counting was used to count the numbers of others cultivated on the solid medium.' with 'The microflora growing on solid media was assessed by plating each serial soil dilution on agar media and by counting the number of colony forming units on each plate.' L80: Precise which microorganisms were cultivated in plates and	bacteria and actinomyces in the same soil suspensions, so it's more suitable for isolation of fungi than PDA. The media for cellulose decomposing bacteria is named by its inventor, who is a Russian. And the exist of cellulose decomposing bacteria is judged by the bacterial plaque in filter paper without cellulose, so whether the medium contains cellulose or not, it's inessential
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SDI Review Form 1.5

	which ones were cultivated in tubes. L82: What is meant by 'according to the growth'? L82: Replace 'Xv et al, 1986' with 'Xv and Zheng, 1986'. Justify the choice of the parameters B/F and A/F. All the references related to the microorganism's isolation are in Chinese. It would be greatly appreciated that at least one reference is in English. Table 1: Explain the composition of each medium by writing sentences in the text. Justify the choice of Gause's synthetic medium for isolating Actinomyces. As Actinomyces are anaerobic bacteria, specific conditions of culture must have been taken. Justify the choice of Martin's medium for fungi. Why not using a more general culture medium like PDA? Replace 'amonifying' with 'ammonifying bacteria'. Replace 'nitrite bacteria' with 'nitrifying bacteria'. Give the English name of the media for cellulose decomposing bacteria and justify that choice as this medium does not contain cellulose. L91: indicate how long the soils were air-dried. L91: indicate which soils were mixed together for the determination of enzyme activities. L94: indicate the units used to express the activities of polyphenol oxidases and peroxidases. L96: Precise what colorimetric methods were used. L99 and 100: All the references related to the assessment of enzymes activities are in Chinese. It would be greatly appreciated that at least one reference is in English. L102: Replace 'The data were processed by Excel' with 'The data were statistically analyzed with Excel software'. L102 and 103: Indicate the references of the softwares used for the statistical analyses as well as the statistical parameters for each test. L103: Replace 'The correlation was analyzed by Statistics Package' with 'The correlation coefficients were calculated by Statistics Package'.	
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SDI Review Form 1.5

Results & discussion (Heading may differ in the case of review paper)	L106: Precise what is meant by 'final disease index'. L110: Replace 'Relationship between microorganisms and resistance to V.wilt' with 'Relationship between the microflora abundance and the resistance to Verticillium wilt' L111: Replace 'The larger numbers of microbes were observed in rhizosphere soil than those in non-planting' with 'The abundance of microorganisms was higher in rhizosphere soil than in non-cultivated soil'. L112-113: Replace 'higher than susceptible types' with 'higher than in the rhizosphere of other types' L113: The fungal abundances in soils from resistant varieties are not lower than in soils from the other types as the mean of fungal abundance for all the cultivars is 1.28×10^6 cfu/g. A test of Dunnett 9, a significant difference is notified. L149 – 151: Those two sentences could be grouped in only one sentence. L151_152: Replace 'Other enzyme activities showed no correlation with disease index' with 'Other enzyme activities showed no significant correlation with disease index'. L154: Replace 'Variation analyses of soil enzyme activities of different eggplants cultivars and their correlation with resistance' with 'Analyses of variation of soil enzyme activities of different eggplants cultivars and their correlation with resistance to Verticillium wilt'. Table 4: In the units of measurement of each column, indicate more precisely what is measured. For example indicate 'polyphenol oxidase /mg·100g⁻¹ of soil·3h⁻¹'. Rewrite all needed legends below the table 4.	L106: The "final disease index" means "the disease index of the last time" These errors were revised as the review suggested.
Conclusion	In a general way, the discussion is short and relatively poor. Some parts could be developed in order to enrich the scientific argument. For example, the comparison between the different studies about the relationships between resistance and the microbial richness and the enzyme activities could be developed. A criticism of the employed methods could also be done. For example, the authors could comment the fact that only microorganisms cultivable on culture media have been taken into account. L157: Replace 'root-soil-microorganism' with 'roots, soil and	The result and discussion parts have been revised, and added lots of references. The shortage of the employed methods has been discussed, and further researches should be taken in future. These errors were revised as the review suggested.



SDI Review Form 1.5

	microorganisms’. L158: Split the sentence in two after ‘root exudates’. L163: Replace ‘fingi’ with ‘fungi’ L165: For a better understanding, replace ‘this experiment’ with ‘our experiment’, so that one can not mistake with the experiment of Li (1998). L168: What is meant by ‘disease incidences among cultivars were varied’? L168: Add ‘enzymatic’ between ‘root’ and ‘activities’. L171: Indicate what are the ‘specific exudates’ are involved. L174: Add ‘level’ after ‘resistance’. L175: Replace ‘and rhizosphere microorganism and soil enzyme characters’ with ‘the rhizosphere microbial population and the soil enzyme activities’.	L168: The “root activities” means “the excretive, absorptive and enzymatic activities”, not only the “enzymatic activities”.
References	About 30% of the references are in Chinese. Moreover, some parts of the paper are only backed up by references in Chinese language. This does not allow people not speaking Chinese to use those references to well understand the study. I recommend to replace some references in Chinese with other references in English.	After revision, the total references reached 61, and including 6 in Chinese.