

***Preliminary result on study the causal pathogen of Longan witch's broom disease by Nested-PCR***

*Bùi Thị Ngọc Lan, Đinh Thị Yến Phương, Bùi Thị Mỹ Bình,  
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**Abstract**

*Longan witch's broom (LWB) is very important disease in the South of Vietnam, a newly emerging disease in southern Vietnam from 2001. The causal pathogen of this disease is not identified yet until now. Nested polymerase chain reaction (nested-PCR) essays with five universal primer pairs were employed to investigate etiologies of disease associated with longan witch's broom in the South, Vietnam. Nucleotide sequences analyze of the PCR-amplified 950bp (PCR product of R16F2n/R16R2 primers followed by P1/P7 primers) fragment, revealed 93% identity of this sequence in the region 16S rDNA to uncultured Gamma-proteobacteria bacterium 16S rRNA gene. Our first result identified the causal pathogen of longan witches' broom disease is uncultured bacterium.*

***Develop SSR marker for assessment of genetic diversity of Candidatus Liberibacter asiaticus, the causal agent of Huanglongbin on citrus in the Mekong Delta region***

*Bùi Thị Ngọc Lan, Bùi Thị Mỹ Bình, Nguyễn Hải Bằng và  
Đinh Thị Yến Phương*

**Abstract**

*Huanglongbing (HLB), previously known as citrus greening is a destructive disease of citrus. The causing pathogens are believed to be phloem-restricted. Using the recently sequenced whole genome of 'Can. L. asiaticus' (Las), we conducted genome wide search to identify simple sequence repeat (SSR) sequencing loci and developed multi-locus SSR marker system for Las genotyping and genetic analyses. Twenty three loci were identified which*

*contain various types of repeat motif potentially suitable for SSR primer design. Among them, 8 SSR primers were developed for genetic diversity analysis of HLB in the Mekong Delta, Vietnam.*

***Result of studying and selecting seedless orange and pummelo  
in the South of Vietnam***

*Nguyễn Nhật Trường và Trần Thị Oanh Yến*

**Abstract**

*One of the main objectives of the citrus breeding programme is seedlessness. Two methods have been conducted 4,924 hybrids were obtained from crossing between citrus varieties . Budwoods from free-disease trees of Soan orange and Nam roi pummelo were treated by gamma irradiations at Da Lat Nuclear Research Institute in dosage levels as 0, 4.0, 4.5, 5.0, 5.5, 6.0 krad. Six months after grafting, 461 irradiated Soan orange and 795 irradiated Nam roi pummelo individuals were evaluated in September, 2010. Seeds of Soan orange and King mandarin were treated by gamma irradiations at 4.0, 6.0, 7.5, 9.0 krad, 347 trees were obtained and grown in net house.*

***Result of studying and selecting citrus Rootstock in the south of Vietnames***

*Nguyễn Nhật Trường, Trần Thị Oanh Yến, Nguyễn Vũ Sơn  
và Nguyễn Ngọc Anh Thu*

**Abstract**

*Colar and root rot diseases are serious, widespread and difficult to control fungus diseases affecting a wide range of citrus in Mekong delta. Conventional rootstock breeding programme, two methods for resistance or tolerance rootstocks to *Phytophthora* were crossing between citrus varieties and treating seeds of citrus by colchicine. The results showed that 4.384 hybrids and 414 trees have been grown and screening in net house to root*

rots and salinity obtained 6 hybrids tolerant to salt and 87 hybrids tolerant to root rots.

***Study to make begin materials for selection longan variety big size small seed, thick flesh and sweet flesh***

*Đào Thị Bé Bảy, Hồ Thị Ngọc Hải và Trần Thị Oanh Yến*

**Abstract**

*In Vietnam, Longan (Dimocarpus longan Lour.) has a genetic diversity source with about 30 varieties. Xuong com vang longan has good fruit quality, big size, however, fruit dropping ratio is high. Tieu da bo longan has high yield, small fruit, big seed, thin flesh. To improve longan Xuong com vang and Tieu da bo variety, a total of 1454 hybrids has obtained from four combinations of Tieu da bo longan x Xuong com vang longan (1189 hybrids), Xuong com vang x Tieu da bo during 2004-2010 (120 hybrids), Sai gon x Tieu da bo (12 hybrids), Long longan x Tieu da bo (48 hybrids), Nhan Vung tau x Tieu da bo (85 hybrids). In 2010 results in fast evaluation of 14 hybrids, we have selected three hybrids (coded as: T - 59, T - 77 và T - 87) showing good characteristics such as fruit weight > 15,0 g, thick flesh > 5,5 mm and brix > 20%.*

***Evaluation and selection for potential hybrid papaya from varieties***

***“HCAR-164 X Đại Loan Tim”***

*Nguyễn Trịnh Nhất Hằng và Nguyễn Minh Châu*

**Abstract**

*Papaya is cultivated in home garden, inter crop with dragon fruit, guava... and some commercial planting which is produced fruits throughout the year, gives quick return to grower and adapted itself to diverse soil and climatic conditions. HCAR-164 variety introduced which has been confirmed tolerance to papaya ring spot virus (PRSV), Đại Loan tim variety which is*

*being cultivated in the Mekong Delta. The present study crosses were affected involving 'HCAR-164' x 'Dai Loan tim'. Lines L18 and L19 selected for evaluation of yield and fruit quality. Among of these hybrids, line L19 was particularly outstanding in vigor, yield and fruit quality. The average TSS (12,8 -12,9 Brix %), firmness (3,13-3,41 kg/cm<sup>2</sup>), yield of fruit (25,67-27,60kg/tree) were better than when compared to control plants. Beside of that, they were not effected by PRSV in the field. Line L19 being evaluated and will be suggested for release as a new variety in the near further by Southern Horticultural Research Institute.*

***Study on establishment of fertilizer doses for Java rambutan for high yield and fruit quality***

*Nguyễn Ngọc Long và Nguyễn Hữu Hoàng*

**Abstract**

*Rambutan (Nephelium lappaceum L.) has itself specific demand on nitrogen and potassium which is different toother fruit crops. Experiment of establishment of fertiliser doses for Java rambutan for higher yield and quality was carried out at Ben Tre had initially shown that the treatment of application of 5kg microorganism composted manure per plant in combination with 700gN + 1120gP<sub>2</sub>O<sub>5</sub> + 1120gK<sub>2</sub>O and the treatment with 5kg microorganism composted manure/plant in combination with 800gN + 1120g P<sub>2</sub>O<sub>5</sub> + 1120g K<sub>2</sub>O + 32gCa<sup>2+</sup>) had higher fruitset percentage (1,22 and 1,18 %), fruit yield of 110,00-114,67 kg/plant and Brix % of 19,38 -19,96 %.*

***Effect of Gibberellin (GA<sub>3</sub>) to yield and quality of Tieu da bo longan***

*Đoàn Thị Cẩm Hồng*

**Abstract**

*The present study "Effect of Gibberellin (GA<sub>3</sub>) to yield and quality of Tieu da bo Longan variety" was conducted on Chau Thanh District, Tien Giang*

province in the year 2009-2010 .The result showed that applied of GA<sub>3</sub> 20-40ppm in tree blossom 20%, 50% at 7 and 8 weeks interval after fruit set which were increased in number of fruit per panicle (23,3-29,0 fruit); weight of fruit (9,31-11,17g/fruit); yield (38-46,7kg/tree), the color of fruit was bright yellow when compared to control trees.

***Study on the effect new compact bulbs in inducing flower of dragon fruit for power saving***

*Nguyễn Ngọc Long và Nguyễn Hữu Hoàng*

**Abstract**

*Dragon fruit is one of the largest of fruit production area in Vietnam. The use of chemicals like KNO<sub>3</sub>, BA, GA<sub>3</sub> and others to induce off-season flower had some progress, but not expectation like its was on other fruit crops. The common practice now is the use of incandescence bulb 75 watt to induce off-season flower which consume huge amount of energy and also dependent on electrical qouta. The shortage in power due to industrial increasing development in the context of fossil enegery is running off. The alternative bulb with lower consuming of power is being replaced. The trial of “Study on the effect new compact bulbs in inducing flower of dragon fruit for power saving” had initially shown that the compact bulb of 20 watt (agri-yellow light) and 26 watt compact bulb produced flowers similarly to incadecense bulb used by farmers. The power consuming amount of compact bulbs using in this trial is 1/4 to 1/3 in comparison to incadecense bulbs which are commonly using in dragron fruit industry.*

***Studies on rehabilitation of Da xanh pomelo greening infected orchard  
by chemo- trunk injection***

Nguyễn Thành Hiếu<sup>1</sup>, Trần Ước<sup>1</sup>, Nguyễn Văn Hoà<sup>1</sup>, Nguyễn Minh Châu<sup>1</sup> và Hong Ji - Su<sup>2</sup>

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**Abstract**

*In Vietnam, greening disease has devastating effect on commercial citrus production in number of regions of Mekong delta since it was attached in late decade. In recent years, efforts to contain the impact of the disease and its spread have involved by apply many technologies to citrus growers. Many reports proved that the use of antibiotic injection as a means of rehabilitating HLB-infected trees was one of the options being explored.*

*An on-going trial is being carried out to study the impacts of antibiotic – trunk injection on Da Xanh pomelo greening infected orchard. The results showed that either treatment of thrice time apply of Tetracycline solution at 2 weeks interval after fruit harvest or twice application of Tetracycline followed by 1 application of Penicillin at 2 week interval which could reduce disease intensity of young shoot more than 80%.*

***Result of studying pathogenic ability, identification of the causal agent and rootstock tolerant ability with rot root disease on citrus in-vitro conditions***

Nguyễn Ngọc Anh Thu, Nguyễn Thị Hằng,  
Nguyễn Thành Hiếu và Nguyễn Văn Hoà

**Abstract**

*Root rot is a serious disease on fruit tree, especially on citrus in the Mekong Delta. Result of study on pathogenic ability of 18 fungal isolates from citrus shown that two isolates of Phytophthora (Phy-CCM, Phy quýt), two isolates of Fusarium (Mai, Mưòng) and one isolate of Pythium (Py-NTT) infected heavy on tau lemon.*

*Result of studying identification of the causal agent rot root shown that there were two isolates Phy quyt and Py NTT were the the causal agent rot root in vitro. Result from citrus rootstock study for root rot disease tolerance using branches, leaves and seeding germination in vitro shown that Do, Duong, Long Co Co pumelo were somehow tolerant to Phytophthora and Pythium and Do and Duong pumelo were fairly tolerant to Fusarium under laboratory tests.*

***The effect of media, temperature and pH on some rot root isolates from citrus in-vitro conditions***

*Nguyễn Ngọc Anh Thư, Võ Minh Mẫn, Nguyễn Thành Hiếu và Nguyễn Văn Hoà*

**Abstract**

*The effect of medium, temperature and pH on mycelial growth of Phytophthora, Fusarium and Pythium fungi was investigated. First trial, two isolates Phytophthora, two isolates Fusarium and a isolate Pythium were cultured on 6 kinds of media CMA, PDA, PCA, SNA, CA and WA. Result shown that optimum media for mycelial growth Phytophthora and Pythium were SNA and PCA, optimum medium for mycelial growth Fusarium was PDA and media for mycelial growth Pythium were CMA, PDA, PCA, SNA, CA. Second trial, two isolates Phytophthora, two isolates Fusarium and a isolate Pythium were cultured on pH 4, 4.5, 5, 5.5, 6, 6.5, 7, 7.5, 8. Result shown that Phytophthora và Fusarium gave good growth at pH 5-8, Pythium gave good growth were from pH 5-4. Third trial, 3 isolates of Phytophthora, Fusarium and Pythium were cultured at 20, 25, 30, 35, 40<sup>0</sup>C and room temperature. Optimum temperuter for mycelial growth of 3 isolates Phytophthora, Fusarium and Pythium were 25, 30<sup>0</sup>C and room temperature.*

***Study control measure of root rot disease on citrus***

*Nguyễn Huy Cường, Nguyễn Thành Hiếu và Nguyễn Văn Hòa*

**Abstract**

*Root rot is a popular and dangerous disease on citrus. It is destroying citrus orchards in Mekong Delta. Organic fertilizer, much decay and biocontrol activity were factors mainly for control rot root disease. In this study, we tried different options to control the disease, results that revealed on citrus in Tiền Giang province.*

***Study on the natural enemies and integrated management model of citrus flower moth (Prays sp.) (Lepidoptera: Yponomeutidae)***

*Trần Thị Mỹ Hạnh, Nguyễn Thị Kim Thoa và Nguyễn Dương Tuyền*

**Abstract**

*A total five species were recorded natural enemies of the citrus flower moth in the Mekong Delta. To establish the effectively integrated management model for the citrus flower moth in Binh Minh-Vinh Long province: the result showed that Dantotsu 16 WSG (Clothianidin) effected against the citrus flower moth.*

***Study on population and ratio of psyllids Diaphorina citri Kuwayama carried pathogen of citrus Greening in year***

*Phạm Tấn Hảo và Đỗ Hồng Tuấn*

**Abstract**

*We have checked about 30 farmer orchards in Tien Giang, Vinh Long and Ben Tre province. The number of spraying on citrus orchard of king mandarin 1.5 years old was highest in Ben Tre province ( $9.64 \pm 2.26$  times/year) and  $6.84 \pm 2.64$  times/year in Tien Giang. Ratio of citrus Greening disease (CG) on citrus orchard from 1-3 years old was highest in Ben Tre province is  $39.40 \pm 14.62$  % and  $16.30 \pm 3.36$ % in Tien Giang*



province. Almost famers used contact insecticides and highest in Ben Tre ( $39.4 \pm 14.62\%$ ). The psyllids population were changed from each orchard in every month of monitoring. Almost its population was increasing and decreasing follow the peak of number of young shoot of trees in orchard. The psyllids density in Tien Giang and Ben Tre province was increasing in Feb, May, Jun and Sep and decreasing in Mar, Apr, Oct, Nov and Dec. Ratio of reinfecton CG on intercropping orchard between king mandarin and seedlees guava is 6,5%.

***The effect of different orchard managements on reinfection of Greening disease***

*Đỗ Hồng Tuấn và Phạm Tân Hảo*

**Abstract**

*A demonstration orchard was established on area about 4.000m<sup>2</sup> in Hoa Hiep village, Tam Binh district, Vinh Long province. This experiment, disease-free seedlings (DFS) planted in four seasons in Jan, Apr, Jul and Nov, 100 seedlings planted each season. After one year of planting DFS, reinfection percentage of citrus Greening disease (CG) of demonstration was 6% on plot which trees were planted in Jan. Second, we established one intercropping experiment between seedless guava and king mandarin with ratio of guava and king mandarin be 1:1 in Dec 2007 in Cai Be district Tien Giang province. Ratio of reinfection CG was 22,22%. Last trial, we established in SOFRI collection farm on 3.000m<sup>2</sup> in late of Oct 2010. This intercropping experiment, DFS were planted with Xaly guava in half of area and another area with seedless guava, both of plots the ratio of guavas and citrus seedlings be 2:1.*

***Studies on star apple root rot causal organism and their biologically characteristics***

*Nguyễn Thành Hiếu, Trần Ước, Nguyễn Ngọc Anh Thu và Nguyễn Văn Hoà*

**Abstract**

*Star apple is one of special fruit which occupied more than 2,000ha in Tien Giang province. Unfortunately, root rot disease attacked severely at different stages and caused tree decline and yield decrease. These investigation results showed that strains of Pythium caused serious root rot disease intensity than strains of Fusarium. Among of four Pythium strains revealed that P-03-strain was most virulent strain.*

*Several enviromental factors including temperature, pH were investigated on pathogens. Mycelium growth of Fusarium strains was constantly inhibited by temperature of under 20<sup>0</sup>C and above 40<sup>0</sup>C, while the range of 25 - 35<sup>0</sup>C was quite suitable for their growth. Similary, Pythium strains were required range of temperature much more than Fusarium strains. Under different pH condition, the growth of test fungi were mostly sinhibited by extreme pH4. However, the results also showed that Pythium strains had developed at higher pH level.*

***Studies on influences of agro-chemicals and bio-chemicals in star apple rootrot disease management***

*Nguyễn Thành Hiếu, Trần Ước, Võ Minh Mẫn và Nguyễn Văn Hoà*

**Abstract**

*Star apple is one of special fruit which occupied more than 2,000ha in Tien Giang province. Unfortunately, root rot disease attacted severely at different stages from young tree to old one and caused serious problem in reducing yield. These trials of root rot disease were conducted at Kim Son commune to find out the best treatment for control that disease.*

*The various of Agro-chemicals evaluated for disease management revealed that Nustar and Norshield could reduced Fusarium spores population in soil while Nustar, Aliette, Physan, Metalaxyl, Agiphos - 400 were potent in reducing Pythium.*

*Similarly, in biological control trial, the results showed that all treatment could reduced the presence spores in soil samples through spore trapping method. Among the six treatment test revealed that Actinovate + Huu co Saigon, Humix + Dynamix lifter + Actinovate + Root 2 and Humix + Trichoderma + Root 2 were the most effective in reducing spores population in soil.*

***Results on durian quick decline disease detection and preliminary results on the effect of some chemicals and reaction of some varieties on fungal tests***

*Đặng Thị Kim Uyên, Nguyễn Thành Hiếu và  
Nguyễn Văn Hòa*

**Abstract**

*In the past two years, durian trees in some parts of the Mekong Delta region were attacked by one new disease, which caused quick decline of many durian trees, especially with the fruit bearing trees. In this study, we found and proved with Koch's postulate that *Phytophthora citricola* is the causal organism of this disease. The fungus could grow well at temperature of 25 to 35°C. In other experiment, we found that Aliette, Siu Lân, Agri Fos and Norshield (Đồng đỏ) were well controlled the mycelial development under lab test, amongst them, Aliette and Norshield shown most effective to control *P. citricola*. In another study, results shown that the two varieties named Lá quéo vàng and Chenee gave somehow tolerant to *P. palmivora* while Sua hat lep Chin Hoa and Chuong Bo provided better tolerant to *P. citricola*.*

***Study on biology, ecology and role of Long Nhung mite (Eriophyes dimocarpi) on the Witches' broom disease phenomenon in longan tree***

Trần Thị Mỹ Hạnh, Nguyễn Dương Tuyền,  
Luong Thị Duyên và Nguyễn Văn Hòa

**Abstract**

*To study abundance of Long Nhung mite on longan varieties were recorded from January to December, 2010.*

*In the study of hosts of Long Nhung mite: Rambutan was recorded hosts of Long Nhung in the Mekong Delta.*

*To study moving capacity of Long Nhung mite in longan tree: The result showed that after Long Nhung releasing nine days, they could move distance of 75cm.*

*Study on biology and ecology of Long Nhung mite (Eriophyes dimocarpi in longan tree in the Southern provinces): The result recorded that eggs were laid on upper surface of young leaves, pure white, and hatch into nymphs which similar to the adult, but smaller and paler, pure white, 39 circle abdomen, 2 pair legs, slow in move. Adult was pure white and dusk white (pure white adult was great number of hairs, there were 30 percent in population), there were two hairs in end of a tail, 2 pair legs, quick in move. Adults infested near the veins of a leaf, on upper and above surface of leaves. The life cycle from egg to adult took 8-15 days. Egg: 3-7 days. Nymph: 4-6 days.*

***To study on application of Long Nhung mite integrated management measures, to impact the Witches' broom disease phenomenon on longan in Southern provinces***

*Trần Thị Mỹ Hạnh, Nguyễn Dương Tuyền,  
Lương Thị Duyên và Nguyễn Văn Hòa*

**Abstract**

*Study on insecticidal properties of some botanical against Long nhung mite: The result showed that red chilli and custard seed could against long nhung spider.*

*Study on the effect of Paecilomyces sp. fungi against Long nhung mite: the result recorded that Paecilomyces sp. fungi could parasite long nhung mite.*

*Efficacy of some insecticides against Long nhung mite (Eriophyes dimocarpi): the result showed that Comite (Propargite), Amara (Abamectin 50 g/l + Matrine 5 g/l), Pegasus (Diafenthiuron) + SK Enspray 99EC oil effected against long nhung mite.*

*Efficacy of water sprayed and insecticide sprayed against Long nhung mite (Eriophyes dimocarpi): the result water sprayed couldn't control long nhung mite in longan tree.*

*Efficacy of different pruned off levels and buds sprayed against longan witches' broom disease: the result recorded that pruned off 50cm twig long could help to control longan witches' broom disease.*

***Result of study on controlling of fruit borers on Dabo Longan  
toward VietGAP standards***

*Nguyễn Thị Kim Thoa, Trần Thị Mỹ Hạnh,  
Nguyễn Thành Hiếu và Nguyễn Hữu Hoàng*

**Abstract**

*Results from the investigation showed that fruit borer (Acrocercops cramerella Snellen) was an important insect causing damage on Dabo Longan.*

*Number of investigated spraying insecticide from 1 to 4 time per season occupied 56.7%, the rest did not use any insecticide. When we tested different*

*biological insecticides for controlling of fruit borer, the result showed that Success 25SC at the dose of 0.2% and Biobit 32B FC at 0.1% gave best control under field condition. The demonstrating pilot showed good control of fruit borer when we used Biobit 32B FC.*

***Results of investigation of host range of Meloidogyne spp. and evaluation of resistant characteristics of some guava varieties to root knot disease***

*Đặng Thuỳ Linh, Bùi Thế Bảo và Nguyễn Văn Hoà*

**Abstract**

*In Mekong Delta, Meloidogyne spp. is heavy infection to guava. Investigation of host range of Meloidogyne spp. and evaluation of resistance is the most important options in integrated nematode management. Meloidogyne spp. infect 15 weed species out of 30 species which presented in infected guava.*

*Twenty two guava varieties were tested to M. enterolobii. Xa ly tron, xa ly Da Lat and Thai Lan lai 2 guava are three varieties which gave lightly resistance to M. enterolobii when population of second stage of juveniles was very high. A Xa ly nghe variety was lightly resistance to M. enterolobii after three months inoculation. Its resistance was lost after 10 months.*

***Primary results of control ability of some of bio-chemical agents to root knot nematodes Meloidogyne spp. in nethouse and guava orchard conditions***

*Đặng Thuỳ Linh, Bùi Thế Bảo và Nguyễn Văn Hoà*

**Abstract**

*Xa ly nghe guava is a good host of M. enterolobii. This root knot species has wide host range and its ability overcomes the resistance of tomato and pepper carrying the Mi-1 and the N gene. Experiment was designed to control Meloidogyne enterolobii by some of bio-chemical agents as herbal, fungi and nematocides in net house conditions.*

*After three months inoculation, most of agents gave good effects to control nematode population in the soil, but root knot index was not reduced. Paecilomyces sp. CUC 1g, C. breviflora and Stop treatments were lost their effects to control of population of second-stage juveniles after eight months. Others gave good effects as Nokaph, C. spectabilis, Regent and Map logic although nematode population was high. So that, this result was applied to the guava orchard to control Meloidogyne spp..*

***Evaluation of biological agents for nematicidal properties of Meloidogyne enterolobii in invitro conditions***

*Đặng Thuỳ Linh, Trần Thị Kiều Lâm, Bùi Thế Bảo và Nguyễn Văn Hoà*

**Abstract**

*Meloidogyne enterolobii is currently considered as one of the most important root knot nematode species because of its wide geographical distribution, its wide host range and its ability to overcome the resistance of important crop plants, such as genotypes of tomato, pepper that carry the Mi-1 gene. This makes it difficult to manage this species, particularly in organic farming systems where chemical control is not an option.*

*Culture filtrate of some of fungal strains (Paecilomyces sp. Cuc, Paecilomyces sp. VS, Paecilomyces sp., RCC, Trichoderma sp. IT1 and Trichoderma sp. ITH) and herbal extracts (Crotalaria spectabilis, C. breviflora and Tagetes patula) were tested against M. enterolobii. Their culture filtrate and herbal extract were shown toxicity towards nematodes. The best nematocidal activity was obtained in Paecilomyces spp.*

***Effects of some fungicides on Branch sudden death syndrome of Tieu da bo Longan in Tien Giang province***

*Nguyễn Huy Cường và Nguyễn Thành Hiếu*

**Abstract**

*Longan is a high value fruit, they are cultivated popular in Viet Nam. Branch sudden death syndrome is a very serious disease, apparently healthy looking tree collapses within few days. Analyses of sequences of the internal transcribed spacer (ITS) region of nuclear rDNA indicated that isolates of Ceratocystis fimbriata. This experiment was carried out to find effective fungicides for controlling Branch sudden death syndrome of tiêu da bo longan. The results revealed that under Lab. The fungi was medium resistant to Norshield, and sensitive to Carbendazi, Benomyl, Hexaconazole and Propiconazole. Trichoderma sp. had ability against Ceratocystis fimbriata.*

***Study on species of fruit borer and control in Rambutan followed VietGAP***

*Lương Thị Duyên, Trần Thị Mỹ Hạnh, Nguyễn Dương Tuyền,  
Nguyễn Thành Hiếu và Nguyễn Hữu Hoàng*

**Abstract**

*Survey, evaluate the situation of rambutan fruit borer damage in Chau Thanh district - Ben Tre province, showed that almost of the fruit stages were damaged by Rambutan fruit borers. In these the old fruit stages is the highest percentage (46.7%). Almost the famers were using the toxicity pesticides group.*

*In the fruit period two months, fruit borers were begun to attack with rate one percent. The fruit stages from three to four month were attack with rate very high (22-25%).*

*Results showed that there were six species of fruit borer presence on rambutan (new species Tirathaba ruptilinea of Pyralidae family, Cryptophlebia ombodelta of Tortricidae family, species of fruit borer bring code 3 of Pyralidae family, Conogethes punctiferalis of Pyralidae family, Acrocercops sp. of Gracillariidae family, Deudrorix epijarbas amatius of Lycaenidae family) in which a new species Tirathaba ruptilinea of Pyralidae family was common and serious damage.*



*Study on biology and ecology characteristics of fruit borer in rambutan tree: The life cycle of species *Tirathaba ruptilinea* was about 30 - 44 days at 28<sup>0</sup>C and 79% RH . Egg: 6-7 days. larvae: 13-20 days, pupal: 8-12 days, adult: 9-12 days*

*Study on insecticidal properties of some botanical against fruit borer: The result showed that all plant extracts had limited effect on pest control, inside the extract from “garlic” and “Siamese custard apple” provided good control of rambutan fruit borer at laboratory condition.*

*The results showed that at orchard conditions all pesticides had limited affected on pest control. In these Success 25 SC, Kuraba WP, Rholam super 50 WSG were high effected against fruit borers.*

*The results also showed that control of fruit borers in rambutan model use Rholam super and Kuraba WP were highly effective to the management of rambutan fruit borers in field conditions, to return increasing the rate profit of the experimental plot was 0,62%.*

***Results on Streptomyces isolation from rhizosphere in the Mekong Delta and its studies on detection and suitable Media for culture***

*Đặng Thị Kim Uyên và Nguyễn Văn Hoà*

**Abstract**

*The Actinomycetes, particularly Streptomyces species, are well-known saprophytic bacteria that decompose organic matter, especially polymers such as lignocellulose, starch and chitin, in soil (Crawford et al, 1993). researches showed that actinomycetes was a promising group of fungus-antagonistic, root-colonizing microbes. Streptomyces species and a few other actinomycetes have been shown to protect several different plants to various degrees from soil-borne fungal pathogens in glasshouse and field experiments (Tahvonen, 1982; Crawford et al, 1993). Streptomyces spp. can parasite or act against many root decay fungi such as Fusarium, Rhizoctonia, Pythium,*

*Phytophthora, Armillaria, Sclerotinia, Verticillium. Other target pests include powdery mildew and other fungal pathogens that attack plant foliage (Crawford et al, 2005). In this investigation, we had isolated three different isolates of Streptomyces, two from Tiengiang and one from Vinhlong named Strep- SOFRI 1, Strep - SOFRI 2 và Strep - SOFRI 3, the three had good antagonistic ability to Fusarium sp. Strep- SOFRI 1 was the best one, this isolate had been sequenced for their 16S gene rRNA, the result shown that Strep-SOFRI was Streptomyces seoulensis. In the other studies, we aimed to determine the suitable media for laboratory culture of Strep - SOFRI 1 and result shown that YCEDM (Casamino Acids Yeast Extract Glucose agar Modified), was best medium and on this medium, we determined that the pH of 6,5 - 7,5 was the best range and pH 7 was the most suitable one for it culture.*

***Antagonistic ability of Streptomyces - SOFRI 1 on Fusarium solani attached  
Citrus volkammeriana rootstock***

*Đặng Thị Kim Uyên, Nguyễn Văn Hòa và Trần Thị Thu Thủy*

**Abstract**

*Recently, in the Mekong River Delta, citrus trees have been heavily infected by yellow decline disease, which caused by Fusarium solani, especially under water logging conditions (Pham Van Kim, 1997, Dương Minh and Pham Van Kim, 2003). Streptomyces spp., the rhizosphere microorganism, was well known as an affective antagonistic agent to fungal pathogens, particularly Fusarium solani. In this investigation, we tested the antagonistic ability of Streptomyces – SOFRI 1 under laboratory conditions by two different methods, one was streaked Streptomyces on one side of the plate and a piece (0.5 cm<sup>2</sup>) of PDA medium containing actively growing Fusarium mycelium on the center of the plate, the second method was to dilute Streptomyces solution to melting media just before pouring to the plate and then inoculate a pieces*

*of F. solani on the center of the plate, both the two gave similar results that Streptomyces could control the growth of F. solani. We also observed the antagonistic ability of Streptomyces - SOFRI 1 to the growth and infection ability of F. solani to Citrus volkameriana seedlings grown in plastic pots under laboratory conditions, two experiments were carried out, one inoculated both Streptomyces and F. solani at the same time, another one which Streptomyces was soaked to citrus seeds 5 hours before, results shown that at both the two experiments, the Streptomyces could provide better germination ratio for citrus seeds even at the presence of F. solani. In addition, Streptomyces gave much better effect to the growth of the seedlings, its root system, especially the fine root system of citrus trees in comparison with that of the check and the F. solani treatment. In another experiment, we tested for antagonistic capacity of Streptomyces – SOFRI 1 to root rot disease caused by Fusarium solani on King Mandarin grafted on C. volkameriana in pots under greenhouse conditions, we found that Streptomyces provided good effect to the tree growth, number of fine roots, length of the roots, particularly reduced number of rotted roots in comparison with that of the treatment of F. solani. In this study, we found that Streptomyces – SOFRI 1 not only gave good effect to reduce the infection proportion of F. solani, but also stimulated the germination percentage of seeds and plant growth of Volka trees. This microorganism is suitable to promote to be the F. solani antagonistic agent.*

***Preliminary result on studying Pseudomonas sp. against Pythium sp.***

*Nguyễn Huy Cường, Nguyễn Thành Hiếu và Nguyễn Văn Hòa*

**Abstract**

*Thirteen Pseudomonas sp. isolates were isolated from thirty tomato samples. Then, they had been tested against with Pythium sp. in the plastic pots with diameter of 15 cm. Result showed that Pseu 8 could control against Pythium sp pathogen*

***Effects of postharvest hot water treatments and preservatives on development of disease and quality of “Tieu da bo” longan***

*Nguyễn Thanh Tùng, Đỗ Văn On và Nguyễn Văn Phong*

**Abstract**

*The main reasons for reducing of storage time and shelf-life of longan is damaged by microorganisms and browning pericarp. Postharvest treatments are being used for disinfestation.*

*and disinfection of an increasing variety of crops, including fruits and vegetables. Therefore, research has been conducted to overcome these problems using hot water treatment and its combination with preservatives.*

*Results of this study showed that using sodium tri-citrate (TS 1%) effectively inhibited the development of postharvest diseases and reduced rate of browning pericarp of longan (28%) for 3 weeks in 5°C. Besides that, hot water treatment at 45°C for four minutes didn't appear postharvest diseases and burn of pericarp on “tieu da bo” longan at 20°C for 5 days.*

***Study on Chinese fruits market and ability to export fresh fruits in Southern provinces: dragon fruit, longan, rambutan, pomelo, mango, banana***

*Lương Ngọc Trung Lập và Đoàn Hữu Tiến*

**Abstract**

*At present, Vietnam fruit and vegetables are consumed in the domestic and export markets. In the year 2010, Vietnam fresh fruit was exported to about 67 markets in the worldwide with the value reached at 148 million USD. China is traditional and major destination for Vietnam fresh fruit exports, accounting for 40% of total value exports (Center for Information Industry and Trade, Ministry of Industry and Trade, 2010).*

*However, exports of fresh fruit to China market was highly fluctuated in the past 15 years. Vietnam is experiencing difficulties in competing with other*

*Asian nations (especially with Thailand, Philippines and Myanmar) in China's fruits market. Study on Chinese fruits market to boost Vietnam fresh fruit exports to this market is targeted.*

***Fruit market in Hongkong and supply capacity of fruits  
from the Mekong Delta region***

*Đoàn Hữu Tiến và Lương Ngọc Trung Lập*

**Abstract**

*Hồng Kông is one of the Vietnam's traditional fruit and vegetable export market. However, the understanding about Hồng Kông market was limited, this made fruit export of Vietnam in general and the Mekong delta region was modest. This study aims to assess the state of Hồng Kông market, the demand trend of consumers' tastes and determine availability of certain goods produced of dragon fruit, longan, rambutan, pomelo, mango in Mekong Delta for export to Hồng Kông market. Research results showed that Hồng Kông market was very dynamic and open, there exists a number of suppliers of goods in general and in particular vegetables. The competition of price and quality in this market become fierce among providers. Therefore the price and quality played an important role in promoting fruit exports to Hồng Kông. The availability of dragon fruit, longan, rambutan, mango production in the Mekong Delta to Hồng Kông market could reach 7.5 thousand tons, 40.6 thousand tons, 9.7 tons and 15.5 thousand tons respectively. To export dragon fruit, longan, rambutan, mango and pomelo from the Mekong Delta to Hồng Kông market reached, should be well-organized production of high quality fruit, improved fruit quality in the direction of safety, low cost.*

***Present status of Da xanh pomelo production, supply, market demand  
in the Mekong Delta region***

*Lương Ngọc Trung Lập và Đoàn Hữu Tiến*

**Abstract**

*Da xanh pomelo is one of the best quality varieties in the Mekong Delta. In recent years, the demand of Da xanh pomelo was sharply increased while the output supply for the market was relatively small. Study on current situation of production, supply, market demand of Da xanh pomelo in the Mekong Delta to meet consumer demand and development of domestic and export markets are targeted.*

*The results indicated that the production of Da xanh pomelo in the Mekong Delta was 19,04 thousand tonnes in the year 2010. Ben Tre was leading producer of Da xanh pomelo in the Mekong Delta with the share of 69s% total production of the region. Northern provinces were major destinations of Da xanh pomelo, accounting for 60% total production. There were about 88% total households to supply less than 5 tonnes/household/year. The prices from the farmers to retailers of types I, II and III were increased by 12, 11 and 10,5 VND thousand per kg, respectively (main season) and 13,5; 13 and 12,5 VND thousand per kg (season off). The consumers in the domestic market were great favourites of Da xanh pomelo (81% of total people choose the highest level). Fruit weight, crust colour, freshness were the most important keys when the consumers bought the Da xanh pomelo.*

***Present status of Java rambutant production, supply and market demand  
in the Mekong Delta region***

*Đoàn Hữu Tiến, Nguyễn Đức Lộc và Lương Ngọc Trung Lập*

**Abstract**

*Mekong Delta has the big output of rambutan for domestic consumption and export. Growing Java rambutan provides the main income for many farmers*

*in this region and brings profit for the country through export activities. This study aims to reflect the real situation market of rambutan that produced from the Mekong Delta, suggests some solutions to improve the competitiveness of the Java rambutan in the market. Results showed that the Mekong Delta supplied about 67 thousand tons of Java rambutan in 2010, including consumption of fresh (use fresh) in the domestic market accounted for 48.4%, for export fresh was 36,1%, used as raw material for processing accounted for 7,4%, the output loss was 8,1%. Java rambutan has less demand than Nhan rambutan in the domestic market, but has high demand than Nhan rambutan in the export market. The factors of fruit weight, color and freshness were consumers interested. To improve competitiveness in the marketplace, rambutan farmers should grow of season rambutan, increase investment in the stages of the production process, post-harvest storage and transportation to help the rambutan fruit improve the quality and skin. The State should support traders of rambutan to expand business scale, capable of competing with other trader in the other countries.*

***Present status of Tieu da bo longan production, supply and market demand in the Mekong Delta region***

*Đoàn Hữu Tiến, Nguyễn Đức Lộc và Lương  
Ngọc Trung Lập*

**Abstract**

*Mekong Delta has been the traditional growing areas of longan in Vietnam. Tieu da bo longan growing has become the main source of income for many farmers in the Mekong Delta and brought profit for the country through export activities. This study aims to reflect the real situation market of longan that produced from the Mekong Delta, suggests some solutions to improve the competitiveness of the Tieu da bo longan on market. Results showed that the Mekong Delta supplied about 295.5 thousand tons of Tieu da bo longan in*

2010, including fresh consumption in the domestic market accounted for 34.2%, for export fresh was 44%, used as raw material for the drying accounted for 15%, the output loss was 6.8%. Tieu da bo longan has less demand than Xuong com vang longan in the domestic market, but has high demand than Xuong com vang longan in the export market. The factors of fruit weight, color and freshness were consumers interested. To improve competitiveness in the marketplace, longan farmers should increase investment in the stages of the production process, post-harvest storage and transportation to help the longan fruit improve the quality and skin. The State should support traders of loan to expand business scale, capable of competing with other traders in the other countries.

***Present status and experience in success and failure of fruit cooperative models in the Mekong Delta region***

*Đoàn Hữu Tiến và Nguyễn Đức Lộc*

**Abstract**

*Mekong Delta plays a crucial role in fruit production in Vietnam, account for 50% of total fruit production and about 40% of fruit area in Vietnam. In fruit trade, producer groups and cooperative stakeholders become much important in term of technical transfer and trade. The critical problems of the fruit producer groups and cooperatives are lack of leading capacity, marketing and finances. So, to upgrading them, the policy about the improve the capacity, give the favour interest rate, and marketing strategy will help to increase the income or fruit producer in the Mekong Delta.*

***Results on selection of clone from variability in vitro and irradiation treatment by gamma ray in Tuberose (Polianthes tuberosa L.) 'Double'***

*Nguyễn Văn Sơn, Lê Nguyễn Lan Thanh,  
Nguyễn Thị Hương Lan và Nguyễn Minh Châu*



## **Abstract**

*Tuberose is one of the most important cut flower in tropical and subtropical climate conditions. It has only two varieties with white colored flowers. In view of these, the experiment was carried out to find out suitable methods for induction new variety of tuberose, in vitro shoot of tuberose were irradiated with four doses of gamma rays (1; 2; 3; and 4 krad). After subculture for shoot rooting, the plantlets were hardening and transferred to field growing in poly-pot for evaluation. The results showed that the irradiating was affected to plant mortality ratio; especially 4 krad showed 100% of plant death. Besides that gamma rays also has effected to growth and development of plant. Leaf chimera mutant was appeared at 1 krad dose of gamma ray. All of these mutants will be best materials to establish new varieties of tuberose in the near future.*

### ***Results on investigation and selection of cultivar/clones of marigold (Tagetes sp.) at Tien Giang province***

*Nguyễn Văn Sơn, Lê Nguyễn Lan Thanh,  
Nguyễn Thị Hương Lan và Nguyễn Minh Châu*

## **Abstract**

*Marigold is a major flower, growing for cut and pot flowers in the world and Viet Nam. Seeds of fourteen clones of marigold (Tagetes sp.) were collected from the year of 2009 and 2010. Seedlings were cultivated in open conditions at Tien Giang province for evaluation. Morphologic characteristics, growth, development and flowering of these clones were recorded. The results showed that all these clones could grown and developed well under tropical conditions; out of which, VT 03, VT 04, VT 5 and VT 12 clones gave more good characters in comparision with other clones, especially in highly uniformity of flower shape. Among these clones, twenty individuals were*

*selected, its will be good material resouces for breeding and induce new cultivars of marigold in the next stage.*

***Results on optimizing micropropagation protocol and selection of in vitro ornamental pineapple***

*Lê Nguyễn Lan Thanh, Nguyễn Thị Hương Lan,  
Lâm Văn Thông và Nguyễn Minh Châu*

**Abstract**

*Tissue culture techniques have been often employed for the mass propagation and conservation of ornamental bromeliad species. In the work, micropropagation and selection of two in vitro ornamental pineapple varieties. Buds from suckers of Ananas bracteatus var. 'Thomson' and Ananas comosus var. 'Longphung' were cultured for experiments. Results, the multiplication of shoots of 'Thomson' variety (10.2 shoots/cluster) in harden Murashige and Skoog-based (MS) medium supplemented with BA 0.5 mg/l and IBA 0.2 mg/l and 'Long phung' variety (11,0 shoots/cluster) in the MS medium supplemented with BA 1.0 mg/l and IBA 0.2 mg/l were the best. While, cultured in liquid MS medium supplemented with 1.0 mg/l BA was increased shoot multiplication rate on 'Thomson' variety (25.3 shoots/cluster); 'Longphung' variety (23.8 shoots/cluster) was highest value. Plantlets were successfully acclimatization. The best substrate for 'Thom son' variety was the GT3 substrate; the GT1 and GT4 substrate was best for 'Longphung' variety.*

***Result on breeding of hot chili F1 variety - LD3 (Capsicum annum L.)***

*Trần Kim Cương, Lê Thị Hương Vân, Lê Trường Sinh và Nguyễn Minh Châu*

**Abstract**

*The hybrid hot chili LD3 was produced from traditional hybridization between two parent lines 9950-5197 and 9955-15 which received from*

*AVRDC. Hot chili F1 variety LĐ3 showed promising traits of indeterminate type with vigorous plant growth, high and stable yield (40 - 50 tons/ha), large number of fruit per plant (50 -70 fruits) and average fruit weight was 16g. The fruit has light yellow color when immature and become attractive red color when ripe, thick fresh with light pungent in taste. This variety showed high virus disease resistance and has been approved for commercial production in Mekong Delta by MARD in December 2010.*

***Results of study determining fertilizer formula in safety cucumber production***

*Lê Trường Sinh, Nguyễn Ngọc Vũ  
và Trần Kim Cương*

***Abstract***

*Study on “Results of study determining fertilizer formula in safety cucumber production” to find out the fertilizer dose for planting cucumber in the Mekong Delta; which could bring high economical effectiveness and safe for customers.*

*The result of the trial showed that the fertilizer dose: 220 kg N : 180 kg P<sub>2</sub>O<sub>5</sub> : 150 kg K<sub>2</sub>O (equally 110 kg Urea + 120 kg KCl + 1000 kg NPK 16-6-8 + 40 kg DAP + 500 kg organic fertilizer/ha) with following applied as first applied with whole 40% NPK before sowing, second applied 50% Ure + 100% DAP at 10 days after sowing through irrigation and last applied 60% NPK + 100% KCl + 50% KCl at 20 days after sowing, that method brought about the highest yield and safety for consumers.*

***Results on collection, conservation, evaluation and use of fruit tree  
germplasm***

*Đào Thị Bé Bảy, Nguyễn Ngọc Thi, Trần Thị Oanh Yến, Trần Thị Mỹ Hạnh,  
Nguyễn Nhật Trường, Nguyễn Thị Ngọc Diễm, Nguyễn Trịnh Nhật Hằng,  
Nguyễn Văn Hùng, Phạm Thị Mười, Bùi Xuân Khôi và Nguyễn Minh Châu*

**Abstract**

*From April 1994 to December 2010 in the South of Vietnam, we have collected total 831 varieties or clones of 49 kind of tropical and subtropical fruit trees with 415 domestic and 416 exotic ones. In 2010, we characterized characters of 115 among 733 varieties or clones of fruit trees conserved. In addition to, use of fruit tree germplasm was conducted and the results indicated that there were 9 kinds of fruit trees with total 26 varieties used for variety improvement and production along with the other testings on mango and citrus for resistance to salty and flooded conditions (8 varieties of each) and on papaya and pineapple for diseases (13 and 3 cultivars, respectively).*