



**Best Thesis Awards
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Name: Ismail Abd El-Shafy Abd El-Hamid

Faculty: Science

Dept.: Chemistry

Degree: PhD

Title of Thesis: Studies with 2-arylhydrazononitriles: a New Convenient Synthesis of 2, 4-Disubstituted- 1,2,3-Triazole-5-Amines



Abstract:

In this thesis a variety of novel approaches to polyfunctionally substituted pyridazines could be achieved through utility of simple readily obtainable intermediate.

In the first part a novel Michael addition reaction of pyruvaldehyde-1-arylhydrazones with α,β -unsaturated nitriles, took place and led to 1,4-dihydropyridazine-6-amine derivatives. The structure of the reaction products could be established with certainty through inspection of spectral data as well as X-ray.

In the second part a new simple approach to prepare 2-ary amine diazastylene could be invented thus replacing previously utilized expensive and carcinogenic dimethylformamide dimethylacetal (DMFDMA). The enamines could be converted into a variety of azolyl pyridazines as well as condensed pyridazines.

In the appendix (third part) a novel route to 2-substituted-1,2,3-triazole-5-amines could be achieved via reacting 2-arylhydrazononitriles with hydroxyl amine. Again the structure could be confirmed through X-ray crystal structure determination.

Key words:

1,4-dihydropyridazine-6-amine, 3,11-dihydropyridazino[1,6-*a*]quinazoline, X-ray crystal structure, 4-methyl-6-oxo-pyridazine-5-carbonitriles, 2-substituted-1,2,3-triazole-5-amines.



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Name: Shima Mohamed Mahmoud

Faculty: Science

Dept.: Chemistry

Degree: MSc

Title of Thesis: Electrochemical Synthesis and Characterization of Composites of Conducting Polymers and Nano-structured Metals



Abstract:

Conducting homo-, bilayer- and co- polymers were electrochemically deposited on platinum and glassy carbon surfaces. Submicro-/nano- co-catalysts of palladium and platinum were electrochemically deposited over the conducting polymer surfaces. Electrochemical investigation of the resulting films was achieved using cyclic voltammetry, chronocoulometry, and electrochemical impedance spectroscopy. Diffusion coefficients were determined for the different films and the effect of changing the synthesis and test electrolytes with the solvent were also compared. Other factor studied was the film thickness and the results showed that a memory effect exists from the synthesis electrolyte that affects the diffusion coefficient values. Film modification with the Pt/Pd co-catalyst can be used successfully in the catalytic oxidation of methanol in direct methanol fuel cells. FTIR measurements proved the incorporation of both individual monomers in the copolymer films. On the other hand, surface morphology revealed by SEM showed distinct difference between homo-polymeric and co-polymeric structures.

Key words:

Conducting polymers, Nano-Structured Catalyst, Methanol Oxidation, Copolymers, Bilayerd Polymers, Diffusion Coefficients, SEM, FTIR, TGA, DMFC.



**Best Thesis Awards
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Name: Sayed Ahmed Safina

Faculty: Agriculture

Dept.: Agronomy

Degree: PhD

Title of Thesis: Effect of Biofertilization and Mineral Nitrogen Applications on Solid and Intercropping Maize with Soybean



Abstract:

Four field trials were conducted at the Agricultural Experiment and Research Station, Faculty of Agriculture, Cairo University, Giza, at 2004-2005 and 2005-2006 summer seasons.

Part I:

This experiment was carried out to study the effect of cropping systems (intercropping, solid 1 and solid 2) and diazotroph inoculation alone or together with application N levels to maize plants by 0, 60, 90 and 120 kg N/faddan on yield and yield components of maize and soybean. Maize variety (SC 122) and soybean variety (Giza 111) were used in this study. The most important results could be summarized as follow: cropping systems (CS) significantly affected on all studied characters. Intercropping system increased leaf area index compared with solid plantings. Solid1 planting resulted in higher maize total dry weight/plant, biological yield/plant, ears/plant, seed index, grain weight/ear, grain yield/plant and per faddan and harvest index than intercropping and solid2. Increasing nitrogen application till 120 kg N/fad increased leaf area index, total dry weight/plant, Ear height, plant height, biological yield/ plant, ears /plant, grain yield /plant and faddan, weight of grains/ear and seed index. Inoculation (Ino.) of maize with diazotrophs increased significantly leaf area index, total dry weight/plant, ear height, plant height, biological yield/plant, ears/plant, grain weight/ear, grain yield/plant and grain yield/faddan compared with uninoculation. Significant interactions between CS x N, CS x Ino., N x Ino. and CS x N x Ino. were recorded on some studied characters. The highest N₂-ase activity was estimated with inoculated soybean under solid1 planting. LER increased by 120 kg N/faddan applying with inoculation. The results indicated that the microbial formulation "Biogramina" of associative diazotrophs successfully replaced 30 kg N/fad for maize plants.



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Part II:

Six soybean varieties were evaluated under intercropping and two solid systems in addition to explore their efficiency to nitrogen fixation and tolerance to intercropping and effect of diazotroph inoculation with application nitrogen to maize plants by 90 kg N/faddan on yield and yield components of maize and soybean. Plant genotype deemed among the criteria that determine the proper plant-microbe interaction. This was very obvious with the different responses to diazotroph inoculation of the various soybean varieties (V). Higher values for maize grain yield/plant was obtained from maize intercropped with Giza 82 and Giza 111. A significant interaction between cropping systemsx soybean varieties was observed on some studied characters. The interaction between cropping systems and soybean varieties was statistically significant for some maize and soybean characters.

Key words:

Maize, Soybean, Solid planting, Intercropping, Inoculation, Diazotrophs, N levels and LER.



**Best Thesis Awards
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Name: Ahmed Yehia Mohamed Ahmed Gad

Faculty: Agriculture

Dept.: Animal Production



Degree: MSc

Title of Thesis: Study on Sperm-mediated Gene Transfer in Poultry

Abstract:

The efficacy of the sperm to uptake exogenous DNA under different dilution and lipofectin treatments and the effects of DNA or DNA-lipofectin mixture incubation with sperm on their characteristics were examined in this study. Semen samples were individually collected from five males of a local broiler male line following the dorsal-abdominal massage. Two trials were carried out to achieve the aims of the study.

Trial 1, was proposed to study the effects of semen dilution (4 μ l diluent/1 μ l semen), heat incubation (exposure of semen to 37°C for 30 minutes using water path) and the addition of lipofectin on sperm characteristics. In this concern, individual semen samples were collected, then intermingled together to form pooled semen. The pooled semen sample was then divided, as equally as possible, into nine parts for nine different treatments. Part 1, was kept un-treated (control). Part 2, was heat incubated. Part 3, was diluted using saline solution (0.9% NaCl). Part 4, was diluted with saline solution, then heat incubated. Part 5, was diluted with Beltsville Poultry Semen Extender (BPSE). Part 6, was diluted with BPSE, then heat incubated. Parts 7, to 9, were all diluted with BPSE, mixed with lipofectin reagent which was added by 5, 10 and 20 μ g/100 μ l diluted semen for parts 7, 8, and 9 respectively, then all were heat incubated.

Trial 2, was designed based on the results obtained in trial 1, where the individual semen samples were collected and intermingled together to form a pooled semen sample. The pooled semen was then divided, as equally as possible, into three parts. Part 2, was then mixed with the pUC18 plasmid (2.5 μ g plasmid/100 μ l diluted



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Part 2, was then mixed with the pUC18 plasmid (2.5 µg plasmid/100 µl diluted semen), then heat incubated. Part 3, was incubated with a mixture of the pUC18 plasmid and lipofectin (2.5 µg plasmid + 5 µg lipofectin/100 µl diluted semen), then heat incubated. After heat incubation in treatments 2, and 3, sperm were washed by adding 500 µl of BPSE to each treatment and mixed thoroughly then centrifuged at 4000 rpm for 5 minutes. The washing was repeated. The un-treated sperm (control) was also subjected to washing procedures and used as a negative control. The DNA was then extracted from the washed sperm of all treatments. The polymerase chain reaction (PCR) was applied to the extracted DNA of all treatment, to recognize the existence of the plasmid DNA in the sperm, and the plasmid DNA was used as a positive control. Two specific primers, forward and reverse, were used to prime a specific DNA substrate of 420 bp long on the rep (pMB1) of the plasmid. In both trials, sperm characteristics including sperm concentration, motility and viability were assessed for all treatments.

The results of trial 1, showed that the un-treated semen (control) contained sperm with 90% motility and the percentages of live, dead and abnormal sperm were 94.8, 1.6, and 3.4%, respectively. The motility was 79% in the heat-incubated semen, and was significantly less than that estimated for the control treatment. However, no significant differences were found in the percentages of live, dead and abnormal sperm between both treatments. The dilution of semen by saline solution did not significantly influence the individual motility compared to the control. It however significantly reduced the percentage of live sperm, and the percentage of dead sperm was subsequently increased. The motility of sperm in the saline-diluted, heat incubated semen was decreased and this was obviously attributed to the heat incubation, since it is not significantly different from that of the heat incubated semen (78% vs 79%). Also, the significant reduction in the percentage of live sperm (90.4%) for the saline-diluted, heat incubated semen compared to the control (94.8%), is rather attributed to the saline dilution effect. The increase in the percentage of dead sperm (4%) is also attributed to the saline dilution effect, not to the heat incubation effect. The percentage of abnormal sperm was neither influenced by the incubation, the saline dilution nor both together. When Beltsville poultry semen extender (BPSE) was used as a diluent, it significantly reduced the individual motility to 79% compared to 90% for the un-treated semen (control). The reduction was significantly comparable to that resulted when saline solution was used as a diluent. The dilution of semen with BPSE did not significantly influence the percentages of live, dead and abnormal sperm. Also.



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Name: Khaled Abdel-Aziz Abdel-Moeen

Faculty: Veterinary Medicine

Dept.: Zoonosis

Degree: PhD



Title of Thesis: Impact of some Helicobacter and Campylobacter species on man and animals

Abstract:

Helicobacter and Campylobacter are two bacterial genera comprise a number of important gastrointestinal pathogens that have emerged in recent years to be the causative agents of serious animal and human diseases. And so, the overall goals of this study to scope on the epidemiology of thermophilic Campylobacter species as well as investigating the zoonotic potential of Helicobacter pylori. For this purpose animal and human samples were collected, animal samples included (feces, milk, abomsa and blood) from cattle and sheep, whereas human samples included (feces, saliva and blood) from persons in contacts with cattle and sheep. The results of the study revealed that the incidence of thermophilic Campylobacter species in cattle and sheep feces was 18.8% and 13.2% respectively while that in human was 9.2%. However, most of isolates were identified as Campylobacter jejuni. Furthermore, Campylobacter jejuni was isolated from 6.4% of the examined cows' milk samples; all isolates from mastitic animals (mainly sub clinically). On the other hand, Helicobacter pylori was isolated from the abomasal samples of 1.5% of the examined sheep and the organism was detected in the feces of 80% of sheep examined by ELISA while the sero prevalence of antibodies against Helicobacter pylori in sheep blood was 58%. Moreover, 86% of persons in contact with cattle and sheep were positive for H. pylori IgG antibodies while all persons in regular contact with sheep were sero positive by using ELISA.

Conclusion, Campylobacter jejuni should be considered as an important cause of enteritis in cattle, sheep and man specially in young ages. Also, this organism played



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an important role as a causative agent of sub clinical mastitis in dairy cattle which lead to economic losses. It is worthy to mention that sheep were considered an important reservoir for *Helicobacter pylori* and a potent disseminator of the organism in the environment through shedding of *Helicobacter pylori* in feces and so, contaminating water and soil regarding all persons in regular contact with sheep at risk from contacting the infection and thus, *Helicobacter pylori* should be considered as a zoonosis.

Key words:

Enteritis, *Campylobacter Jejuni* , *Helicobacter Pylori* and Zoonosis



Best Thesis Awards
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Name: Ayman Hany Mahmoud Metwally El-Deeb

Faculty: Veterinary Medicine

Dept.: Virology

Degree: MSc



Title of Thesis: Construction of Recombinant Baculovirus Expressing
G_N Protein of Rift Valley Fever Virus

Abstract:

G_N protein of Rift Valley Fever Virus (ZH-501 strain) was expressed in *Spodoptera frugiperda* (Sf-9) insect cell line using recombinant baculovirus carrying G_N gene of RVFV. RVFV was characterized using RT-PCR and sequencing of the internal part of the M genomic segment of the virus which revealed that the virus was related genetically to the Egyptian lineage. The full length G_N gene was amplified using RT-PCR, cloned into baculovirus transfer vector pBlueBac4.5/V5-His-TOPO® and the recombinant plasmid was checked for correct orientation by PCR assay. The cloned G_N gene was introduced into the genome of *Autographa californica nuclear polyhydrosis virus* (AcMNPV) under control of the polyhedron promoter, through a process of homologous recombination between the recombinant transfer vector identified for correct orientation and a linearized replication-defective baculovirus DNA (Bac-N-Blue™). Recombinant baculovirus was purified using plaque assay and checked for recombination and purity using PCR assay. The pure recombinant baculovirus carrying G_N gene of RVFV was propagated in Sf-9 cells for production of high titer (P2) virus stock which was titrated using plaque assay and used in expression of G_N protein. The expressed protein was characterized by immunofluorescence, solid phase ELISA, SDS-PAGE and Western blot assays which revealed that the protein was expressed at a high level especially after 96 hours of infection of the insect cells with the recombinant baculovirus. The expressed protein will be used in future studies in the field of diagnosis in development of new diagnostic kits and in the development of subunit vaccine to RVFV.

Key words:

RVFV, Rift Valley fever, Baculovirus, Genetic Engineered Vaccines, G_N.



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Name: Naglaa Abd-El Moneim Morad

Institute: Statistical Studies and Research

Dept.: Applied Statistics and Econometrics



Degree: PhD

Title of Thesis: Isotonic Statistical Inference in Linear Models

Abstract :

The main purpose of this dissertation is to develop tests for monotonicity of the normal means problem. We have studied different procedures for testing equality of fixed effects against the alternative that there are order restriction types, in one way model and in two way mixed model. Two cases have been considered, with known and unknown variances. Tests considered are the likelihood ratio test, the score test, and the general score test are used. Two different types of order restriction are also used, the simple and the umbrella order.

Key words:

Isotonic Inference, Order Restriction, Simple Order, Umbrella Order, Likelihood Ratio Test, The Score Test, The General Score Test.



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Name: Maha Mostafa Kamal

Institute: Statistical Studies and Research

Dept.: Biostatistics and Demography

Degree: MSc

Title of Thesis: Women's Empowerment and Child's Health & Education in Egypt



Abstract :

The study aimed to identify relationships between women's empowerment and child's health & education. It concluded that woman's age and education, husband's education, woman's work, place of residence, parents literacy and blood relationship are the main determinants of women's empowerment. There was a significant relationship between full vaccination, the prevalence of diarrhea and decision-making and mobility. Another relationship existed between school's attendance and decision-making, mobility, child's sex, place of residence, woman's & husband's education, woman's work and parents literacy.

Key words:

Women's Empowerment, Child's Health, Child's, Education, Women's Empowerment Index.