2263rd Conference Agriculture Technology 2018



Global Summit on AGRICULTURE, FOOD SCIENCE AND TECHNOLOGY

October 26-27, 2018 | Boston, USA

Poster Presentations

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Utilization of seashells and sand powders as natural bleaching material for crude soybean oil

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This study was carried out to use the seashells and sand powders as natural bleaching material to reduce the color of crude soybean oil and compared with synthetic bleaching earth (clay) during their refining process, furthermore study some chemical properties (acid, peroxide and thiobarbituric acid values) of crude soybean oils. In the present study, the color of crude soybean oils under investigation was determined using Lovibond Tintometer (model F) and the percentage of removal of red color were calculated. The results showed that removal of the red color of crude soybean oils treated with seashells and sand powders were higher than bleaching earth and the highest removal was observed with crude soybean oil treated with seashell powder. Observational studies have demonstrated that additives seashells and sand powders to soybean oils as natural bleaching earth during their bleaching process retarded the red color of these oils compared with synthetic bleaching earth (clay) additional seashells and sand powders enhanced the acid, peroxide and thiobarbituric acid values of crude soybean oils.

Biography

Ahmed A Aly has completed his PhD at the age of 31 years from El-Azher University Cairo, Egypt. He is the Assistant Professor of Food Sciences and Technology, Faculty of Specific Education, Benha University, Egypt. He has published more than 15 papers in reputed journals.

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Greenhouse gas emissions and agro-physiological response of rice under drip irrigation with plasticfilm-mulch

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The increasing water scarcity and the need to produce more rice to feed the burgeoning population under sustainable environment have become a task to crop production. A field experiment was conducted to investigate the emission of CH₄ and N₂O and the response of rice yield, water productivity and physiological traits of rice cultivars to drip irrigation with plastic-film-mulch (DP) in comparison to the continuous flooding (CF) in 2016 and 2017. DP reduced accumulated CH₄ flux by 178% and 78.5% in 2016 and 2017 respectively as compared to CF. In both years, significant differences in N₂O fluxes were not observed between treatments at P<0.05. The grain yields of Koshihikari (7.0g/m² and 7.4g/m²) and Norin 24 (8.0g/m² and 8.4g/m²) under DP and CF respectively were insignificant (P<0.05) but Princessari cultivar resulted in 53% yield reduction under DP compared to CF. Also, DP significantly increased water use efficiency (WUE) by 93.8% and 94.6% for Koshihikari and Norin 24 respectively but showed 5% reduction for Princessari compared to CF. The decrease in the maximum quantum yield (Fv/Fm), actual quantum yield (Δ F/Fm') of Princessari cultivar at the grain filling stage indicated the down-regulation of photosystem II (PSII) attributable to water stress. The average global warming potential (GWP) of the GHGs during the rice growing seasons was 45 times lower under DP than CF. These results indicate that DP could mitigate greenhouse gas emission without yield loss in addition to saving water.

Biography

Fawibe Oluwasegun Olamide is a current second year PhD student of the Faculty of Environmental Horticulture, Chiba University, Japan. He is an awardee of the Japanese Government Scholarship (MEXT). He had a Bachelor's degree in Biological Sciences (First class) and a Masters in Botany (Plant physiology) at the Federal University of Agriculture Abeokuta, Nigeria. He has published more than 6 papers in reputed journals.

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October 26-27, 2018 | Boston, USA

Accepted Abstracts

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Investigation of anti-diabetic properties of haskap (Lonicera caerulea L.) berry polyphenols

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Haskap (*Lonicera caerulea* L.), also known as blue honeysuckle, is a recently commercialized berry crop in Canada. Haskap berries are rich in polyphenols, including anthocyanins, which are known for potential health-promoting effects. Cyanidin-3-O-glucoside (C3G) is the most prominent anthocyanin of haskap berries. Recent literature reveals the efficacy of C3G in reducing the risk of type 2 diabetes (T2D), which has become an increasingly common health issue around the world. The T2D is characterized as a metabolic disorder of hyperglycemia and insulin resistance. It has been demonstrated that C3G has anti-diabetic effects through various ways, including inhibition of dipeptidyl peptidase-4 (DPP-4), reduction of gluconeogenesis and inhibition of the formation of advanced glycation end-products (AGEs), improvement in insulin sensitivity and inhibition of activities of carbohydrate-hydrolyzing enzymes, including α-amylase and α-glucosidase. The proposed research investigates the influence of variety and harvests maturity of haskap on C3G, other fruit quality characteristics and anti-diabetic activities of haskap berries using *in vitro* and *in vivo* studies. The poster will address only the completed first objective of my Masters project as follows; Variety and harvesting maturity can influence the polyphenol composition and biological properties of haskap berries. Haskap polyphenols, especially C3G exhibit anti-diabetic properties through multiple mechanisms. The *in vitro* assays will be conducted to investigate the inhibitory properties of haskap polyphenols on carbohydrate hydrolyzing enzymes and DPP-4. An established mice model will be used to determine serum glucose concentration, AMPK activation and inhibition of gluconeogenesis enzymes upon the dietary intervention of haskap berries.

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Effects of water deficit on flour mixing properties, breadmaking quality and storage protein compositions in bread wheat (*Triticum aestivum* L.)

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Water deficiency affects grain proteome dynamics and storage protein compositions, resulting in alterations in gluten viscoelasticity. In this study, we investigated the effects of field water deficit on wheat breadmaking quality and grain storage proteins. Water deficiency produced a shorten grain-filling period and a decrease in grain number, grain weight and grain yield, a reduced starch granule; increased protein content and glutenin macropolymer contents, resulting in superior dough properties and breadmaking quality. Reversed-phase ultra-performance liquid chromatography analysis showed that the total gliadin and glutenin content, as well as the accumulation of individual composition, were significantly increased by water deficiency. Two-dimensional gel electrophoresis detected 144 individual storage protein spots with significant accumulation changes in developing grains under water deficit. The comparative proteomics analysis revealed that water deficiency resulted in significant upregulation of 12 gliadins, 12 HMW-GSs and 46 LMW-GSs. Quantitative real-time polymerase chain reaction analysis revealed that the expression of two storage protein biosynthesis related transcription factors *Dof* and *Spa* was upregulated by water deficiency. Our results illustrated that water deficiency leads to an increased accumulation of storage protein compositions and an upregulated expression of *Dof* and *Spa*, resulting in an improvement of glutenin strength and breadmaking quality.

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Effect of different levels of supplemental groundnuts shells on hematological parameters of cattle during the dry season in communal grazing areas of North West Province, South Africa

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A n eight-week feeding trial was conducted to determine the effect of supplementing the diet of communal cattle with different levels of groundnut shells (GNS) on hematological parameters. Thirty-five cattle were randomly allocated to five treatment groups (A, B, C, D and E) with seven animals in each group. The basal diet consisted of blue buffalo grass and water *ad libitium*. Treatment group A received the basal diet and water only. Treatment group B was supplemented with 700g/kg of GNS, C with 1050 g/kg of GNS, D with 1400g/kg of GNS and E with 1750g/kg of GNS. Blood was collected once a week for eight weeks. An analysis was done through the IDEXX Catalyst machine. In each of the parameters measured, the animals receiving 1050g/kg of GNS had higher values compared to the control group and all other treatment groups even those supplemented at higher levels of GNS. The parameters in which the values were significantly (P<0.05) higher in the group offered the 1050g/kg GNS compared to the controls were red blood cells (RBCs), lymphocytes (LYM), monocytes (MONO), eosinophils (EOS) and platelets (PLT). These results would indicate that supplementing the diet with GNS with a crude protein of 11.67% or higher would improve the animal's ability to produce more RBCs, LYM, MONO, EOS and PLT and thereby improve the health and productivity of the cattle.

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Influence of some natural factors on the survival, growth performance and production of European sea bass fish (*Dicentrarchus labrax*) larvae and juveniles

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ddition of different microalgae as green water, Nannochloropsis salina, Isochrysis galbana, Tetraselmis chuii, Chlorella salina ${f A}$ and a mix of them, to enrich the rearing water during the larval to post-larval stages of sea bass (Dicentrarchus labrax) was evaluated in terms of growth, survival and metabolic chemical composition. The present study was carried in Marine Hatchery of NIOF, Alexandria, where first it starts from the third day after hatch till the 45th day of aged post-larvae. The results revealed that the user of the Isochrysis galbana promoted growth performance by increasing weight gain (WG) to 12.75mg/fish compared with control 10.18mg/fish and also achieved survival percentage 46.08%, which was 20.09% in control group. Moreover, I. galbana and mixed algae showed the highest values for protein, lipid and dry matter contents at significance level P<0.05 compared to the control treatment. Microbiological analysis showed highest total bacterial count in the water containing I. galbana, considering this microalga may benefit larvae by producing probiotic as bacterial associated communities that promising green water effect for enhancing the appropriate larval environment, growth and survival of the D. labrax larvae during the early larval stage. Secondly, this present study also dealt with weaning period in post larval stages to Juveniles by applying five different treatments of food additives in the diets formulations composed of natural Seafood sources compared to artificial food. (DZ) Zoo control dry feed 45% protein, (DS) dry feed 30% protein, (FF) equal mixture proportions of fresh sardines and squid and crab eggs and decapsulated artemia cysts, (D+A): 80% dry feed (Skretting) dry feed addition to 5% Fish oil (weight of dry feed Hendrix) and 20% decapsulated artemia cysts by on a dry weight basis and (D+C): 80% dry feed (Skretting) dry feed addition to 5% fish oil (from weight Hendrix) +20% Minced crab hydrated by on a dry weight basis. The result revealed a significant difference (P<0.05) in FW and WG between the control basal diet and the other experimental diets. The FW and WG showed the highest value recorded for FF (37.34±0.183 and 33.90±0.18g/fish respectively as well as highest survival percentage (100%) while the lowest performance was obtained for (DS) treatment with values 9.00±0.317 and 5.58±0.30 g respectively & 90.00±5.774) % for survival which increased gradually in DZ (control) to 96.67±3.333%.

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Development of a drum-dried instant vegetable soup powder formulated with green leafy vegetables

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The increasing of awareness regarding the health-protecting properties of non-nutrient bioactive compounds has directed immense attention as vital components of daily diets. In this study, we developed a product of drum-dried instant vegetable soup powder incorporated with green leafy vegetables rich in micronutrients. Selected vegetables were cut into small sizes after sorted and cleaned by washed thoroughly with cleaned water. Different mixtures were prepared by incorporated leafy vegetables as 5%, 7.5% and 10% of total weight. Through the evaluation of their sensory attributes, 7.5% was selected and two different mixtures were prepared by incorporating fresh and dehydrated leafy vegetables (7.5%). Prepared mixtures were fed into a drum dryer system and dried-soup powders were obtained, which were subsequently evaluated by a 30-member sensory panel for sensory attributes using a 7-point hedonic scale. The statistical analysis of the sensory data showed that there were no significant differences between the two different treatments. A sample, prepared with completely fresh ingredients were mostly preferred by the panelists to possess better quality with respect to taste, smell, color and overall acceptability. In the evaluation of shelf life stability based on free fatty acid (FFA) and peroxide value (PV), we found that these two parameters were not exceeded the safety values over a period of 3 months and obtained total plate count values up to the 3 months of store period ensured that soup powder samples packed with triple illuminated foil can be stored for a long time under dry, cool conditions.

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