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OP-L14

Assessment of Nutritional Value of *Limonia acidissima* L. (Wood Apple)

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The objective of the study was to investigate *Limonia acidissima* L. (wood apple) to determine moisture content, ash content, carbohydrate content, fatty acid composition, protein content and micronutrients (Na, K, Zn, Fe) present in wood apple grown in Bangladesh. Different biologically important functional groups were identified by FT-IR spectroscopy. Moisture content and ash content obtained were 74.02 and 25.44%, respectively. Carbohydrate content determined by ultraviolet-visible (UV-Visible) spectroscopic method was 16.13 g per 100 g of dried wood apple. The fatty acids were identified by Gas Chromatography-Flame Ionization Detector (GC-FID). The relative percentage of fatty acids mainly palmitoleic acid, octadecanoic acid, cis-9-oleic acid and octanoic acid were 17.33, 15.09, 15.09 and 45.09%, respectively. The amount of protein was 5.11%. The micronutrients such as Na, K, Zn, Fe present in edible portion of wood apple measured by atomic absorption spectroscopy (AAS) were 10.40, 58.24, 0.37 and 1.67 mg per 100 g, respectively. The fruit has long been utilized in herbal medicines and is eaten raw or processed into a variety of products to prevent noncommunicable diseases and micronutrient deficiencies.

OP-L15

Biocontrol of Foot and Root Rot Disease of Groundnut (*Arachis hypogaea*) by Dual Inoculation with *Rhizobium* and Arbuscular Mycorrhiza

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The present study was carried out to investigate the potential of AM (Arbuscular mycorrhiza) fungi alone and in combination with bioinoculants i.e. *Rhizobium* to find out the best combination of dry biomass, nodulation, colonization and yield, along with their biocontrol against groundnut foot and root rot caused by *Sclerotium rolfsii*. The study was carried out under pot culture conditions in the net house of Soil Science Division, BARI, Gazipur in 2020 and 2021. The experiment was designed in RCBD with eight treatments and four replications. Peat-based rhizobial inoculum (BARI RAh-801) was used in this experiment. Soil-based AM inoculum containing approximately 252 spores was used in pot¹. The treatments were Arbuscular mycorrhiza (AM), *Rhizobium*, AM + *Rhizobium*, *Sclerotium rolfsii*, *Sclerotium rolfsii* + AM, *Sclerotium rolfsii* + *Rhizobium*, *Sclerotium*

rolfsii + AM + *Rhizobium*, and Control. Dual inoculation (AM + *Rhizobium*) significantly increased dry biomass, nodulation, colonization, yield and yield attributes of groundnut compared to single inoculation or other treatments. The result showed that dual inoculation (AMF + *Rhizobium*) increased nut yield (59.61% in 2020 and 26.32% in 2021) and stover yield (23.21% in 2020 and 33.74% in 2021) compared to control. On the contrary, *Sclerotium rolfsii* + AMF + *Rhizobium* increased nut yield (65.50% in 2020 and 52.94% in 2021) and stover yield (36.45% in 2020 and 99.35% in 2021) compared to only *Sclerotium rolfsii* treatment. Therefore, AMF species and its combination with rhizobial inoculum increased yield and reduced the incidence of foot and root rot disease in groundnut plants.

OP-L16

Comparative Study on Quality of Dried Mola, Kachki and Chapila Fish Produced in Different Drying Process

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The objective of the present study was to ordain the effect of sun drying and heat pump drying on the quality of freshwater mola (*Amblypharyngodon mola*), kachki (*Corica soborna*) and chapila (*Gudusia chapra*) compared with the products collected from the local market. These products take 10-12 hours while drying traditionally under sun and assembles a lower market price. Modern industrial dryers (heat pump dryer) take 7-9 hours to produce dry fish without texture and color degradation. Physico-chemical changes, proximate composition and sensory evaluation were analyzed. No significant changes were found in case of protein, lipid and moisture content between the products produced under open sun drying and heat pump drying while locally available products showed lower quality in case of protein, lipid and moisture. Moisture content was found higher in local products where protein content found lower in local products compared with the products obtained from open sun drying and heat pump drying. Microbial load was also higher in dry fish collected from the local market. Besides, the quality of the dried fish products from heat pump dryer was excellent in quality compared to the dried fish collected from local market. The data obtained in this study, in terms of sensory and food quality aspects indicated that dried fish obtained from heat pump dryer were far acceptable quality compared with the dried fish obtained from the local market.

Effect of *Trichoderma harzianum* and Arbuscular mycorrhizal Fungi on growth and Disease management in Groundnut (*Arachis hypogaea*)

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The present study was carried out to evaluate the effect of indigenous Arbuscular Mycorrhizal Fungi (AMF) and *Trichoderma harzianum* on germination, nodulation, colonization and yield of groundnut along with their biocontrol against groundnut foot and root rot caused by *Sclerotium rolfsii*. This experiment was carried out under pot culture conditions using AMF alone or in combination with *Trichoderma harzianum* in the net house of Soil Science Division, BARI, Joydebpur, Gazipur during 2019 and 2020. The experiment was designed in CRD with eight treatments and four replications. The result showed that dual inoculation (AMF + *Trichoderma*) treatment produced the highest germination, nodulation, colonization and yield of groundnut compared to control or single inoculation. In contrary, *Sclerotium* + AMF + *Trichoderma* treatment produced significantly higher germination, nodulation, colonization and yield of groundnut compared to *Sclerotium* or single inoculation with *Sclerotium*. Dual inoculation (AMF + *Trichoderma*) increased germination (14.00% in 2019 and 10.86% in 2020) after 20 days after sowing, nut yield (5.25% in 2019 and 23.32% in 2020) and stover yield (24.40% in 2019 and 41.43% in 2020) compared to control. On the contrary, *Sclerotium rolfsii* + AMF + *Trichoderma* increased germination (30.31% in 2019 and 43.77% in 2020) after 20 days of sowing, nut yield (56.80% in 2019 and 26.67% in 2020) and stover yield (25.08% in 2019 and 36.60% in 2020) compared to only *Sclerotium rolfsii* treatment. These bio-control agents have proved both efficacious and safe under organic mode and ensure biological control, better growth, and improved productivity.

endangering public health seriously with numerous acute and chronic diseases. Our future generation will be seriously affected with vulnerable physical and mental growth inflicted by food adulteration or contaminant. This paper describes the impact of consumption of adulterated or contaminated fruits and vegetables on human health and the roles of the concerned authorities to eradicate it. The key objectives of this paper are not to blame or undermine anyone. It is essential to prevent the food from adulteration or contamination at all stages of the food chain. We intend to inform and to raise awareness about the current scenario of adulteration or contamination about fruits and vegetables and wish to bring a positive change through proper measures by the concerned regulatory authorities.

OP-L28

Effect of Arbuscular Mycorrhizal Inoculation on Groundnut (*Arachis hypogaea*) at Different Salinity Levels

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Arbuscular mycorrhizal (AM) fungi increase host plants' tolerance to different salinity levels. A pot experiment was carried out in the net house of Soil Science Division, Bangladesh Agricultural Research Institute, Joydebpur, Gazipur during 2019-2020 and 2020-2021. The study's objectives were to evaluate the potentiality of arbuscular mycorrhizal inoculation on the nodulation, colonization, fresh and dry biomass, and yield of groundnut treated with different salinity levels. The experiment was designed in a factorial randomized completely block design with four replications. Five salinity treatments (0, 2, 4, 6, and 8 dSm⁻¹) possessed salinity levels as the first factor, and the second factor consisted of mycorrhizal and non-mycorrhizal treatments. Soil-based mixed arbuscular mycorrhizal (AM) inoculum containing approximately 252 ± 20 spores and infected root pieces of the host plant was used in pot¹. With increasing salinity concentration modulation, colonization, biomass, plant height, nut yield, and stover yield decreased significantly. It was observed that 0 dSm⁻¹ + AM treatment produced the highest nut yield (16.93 g plant⁻¹ in 2020 and 19.55 g plant⁻¹ in 2021) and stover yield (19.17 g plant⁻¹ in 2020 and 32.66 g plant⁻¹ in 2021) of groundnut. In contrast, 8 dSm⁻¹ treatments produced the lowest nut yield (12.52 g plant⁻¹ in 2020 and 14.19 g plant⁻¹ in 2021) and stover yield (14.47 g plant⁻¹ in 2020 and 18.69 g plant⁻¹ in 2021) of groundnut. The study indicates that mycorrhizal inoculation reduces the harmful effects of salinity on the groundnut plants under saline stress conditions.

PP-182

Effect of Biofertilizer, Biochar and Chemical Fertilizers on Yield and Qualitative Properties of Groundnut

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A field experiment was conducted at BARI Central Farm, Joydebpur, Gazipur, to evaluate the effect of biofertilizer, biochar and chemical fertilizers on groundnut yield and qualitative properties during the rabi season of 2020-2021. The crop variety was BARI Chinabadam-8, and the Rhizobium strain was BARI RAh-803. There were nine treatments, viz. T₁: Control (non-inoculated and non-fertilized), T₂: Biochar @ 5 t ha⁻¹, T₃: Biochar @ 10 t ha⁻¹, T₄: Biochar @ 5 t ha⁻¹ + IPNS based NPKS, T₅: Biochar @ 10 t ha⁻¹ + IPNS based NPKS, T₆: Biochar @ 5 t ha⁻¹ + Rhizobium + IPNS based PKS, T₇: Biochar @ 10 t ha⁻¹ + Rhizobium + IPNS based PKS, T₈: 100% NPKS, T₉: Rhizobium inoculant + 100% PKS which were replicated three times. The peat-based rhizobial inoculum was used at a 1.5 kg ha⁻¹ as seed inoculant. The result showed that the highest nut yield (1.64 t ha⁻¹ in 2021 and 2.42 t ha⁻¹ in 2022) and stover yield (6.20 t ha⁻¹ in 2021 and 4.09 t ha⁻¹ in 2022) were observed in T₇ treatment which was identical to the T₆ treatment having nut yield and stover yield 1.55 t ha⁻¹ and 5.80 t ha⁻¹ in 2021, and 2.40 t ha⁻¹ and 3.81 t ha⁻¹ in 2022, respectively. So, we can reduce biochar and inorganic fertilizer without affecting the quality and productivity of groundnut. From the trial, it can be concluded that Biochar @ 5 t ha⁻¹ + Rhizobium + IPNS based PKS may be recommended for groundnut cultivation in Grey Terrace Soil of Joydebpur (AEZ-28).

PP-183

Decomposition Pathways of [Ru(bpy)₃]²⁺ towards O₂ Production During Photocatalytic Water Oxidation

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The development of homogeneous photocatalytic water oxidation system which is an essential component for solar energy conversion to fuels, consists of Ru^{II}(bpy)₃²⁺ as a photo pump, S₂O₈²⁻ as the sacrificial electron acceptor and a water oxidation catalyst. The limitation of this system is

PP-185**Effect of Arbuscular Mycorrhizal Fungi, Biochar and Vermicompost on Maize (*Zea mays*) in Saline Soil**

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The present study was carried out to evaluate the effect of indigenous Arbuscular Mycorrhizal Fungi (AMF), biochar, and vermicompost on growth parameters, biomass, colonization, and yield characters of maize in 8 dS m⁻¹ saline soil. The experiment was carried out under pot culture conditions in the net house of Soil Science Division, Bangladesh Agricultural Research Institute, Joydebpur, Gazipur in 2022. The experiment was designed in CRD with eight treatments and four replications. The ten treatments were T₁ : Control, T₂ : Arbuscular mycorrhiza (AM), T₃ : Biochar @ 10 t ha⁻¹, T₄ : Vermicompost @ 3 t ha⁻¹, T₅ : AM + Biochar @ 5 t ha⁻¹, T₆ : AM + Biochar @ 10 t ha⁻¹, T₇ : AM + Vermicompost @ 3 t ha⁻¹, T₈ : AM + Vermicompost @ 6 t ha⁻¹, T₉ : Biochar @ 5 t ha⁻¹ + Vermicompost @ 3 t ha⁻¹ and T₁₀ : AM + Biochar @ 5 t ha⁻¹ + Vermicompost @ 3 t ha⁻¹. The result showed that AM + Vermicompost @ 3 t ha⁻¹ treatment produced the highest growth parameters, biomass, colonization, and yield characteristics of maize in 8 dS m⁻¹ saline soil, and the control treatment produced the lowest growth parameters, biomass, colonization, and yield characters of maize in saline soil. It was noticed that AM + Vermicompost @ 3 t ha⁻¹ treatment (T₇) produced the highest kernel yield (101.25 g pot⁻¹, 91.94% higher over control) of maize which was significantly different from the rest of the treatments. Therefore, the combination mentioned above could sustain soil health, and ensure better growth and productivity in a saline environment compared to the other mixes.

PP-186**Pervasiveness of Microplastic Contamination in the Gastrointestinal Tract of Fishes from the Western Coast of Bangladesh**

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This study aimed to investigate the prevalence of microplastics in the gastrointestinal tract of fishes from the western coast of Bangladesh which possess the world's largest mangrove ecosystem. A total of 8 species (n = 8 per species) were investigated for the abundance of microplastics, of which