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Cover photos/figures: Top left, top right and center right: Mealy bug damage (black sooty mold) on banana fruits, 'Yangambi Km5' banana bunch, white grub larvae, respectively (Okolle *et al.*, pp 1-19). Center left: Yam plant var. Bètè-bètè infected with CMV showing leaf chlorosis (Séka *et al.*, pp 36-43). Bottom: Relative fruit sizes of some tomato cultivars under heat stress (Mansour *et al.*, pp 73-79).

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Justin N. Okolle, Gabriel H. Fansi, Franklin M. Lombi, Patrick Sama Lang (Cameroon), Pierre Michel Loubana (Republic of the Congo-Brazzaville) Banana Entomological Research in Cameroon: How Far and What Next? (pp 1-19)

ABSTRACT

Review: The African Research Centre on Bananas and Plantains (CARBAP) is an autonomous centre based in Cameroon and has carried out much research on insect pests on bananas/plantains. Major and potential insect pests recorded include borer weevils, white grubs, and long tail mealy bugs. Of these three, the banana borer weevils are the most important as they are found in all major production zones and on pre-flowered/bunched plants, as well as on harvested pseudostems. Larvae of these borer weevils cause damage by creating feeding tunnels within corms that usually result to weak growth, poor anchorage and toppling. Percentage of plants attacked varies between 3-81%. The number of adult borers caught per trap varies with type of traps and agroecological zones with highest catches recorded during the rainy season. As far as management of the pest is concerned, classical insecticides, biocontrol and genetical control techniques have been widely evaluated. Most effective insecticides are fipronil, thiomethoxam, and imidaclopride. Also, both exotic commercial and indigenous *Beauveria bassiana* have shown great potential in managing these borer weevils. Since no single technique has been reported to successfully manage the borer weevils, evaluating the effects of an IPM package (clean planting materials, use of botanicals, entomopathogens, proper field sanitation, incorporating info chemicals, wise use of synthetic chemicals as well as use of resistant or tolerant varieties) is necessary.

Oluwole O. G. Amusan (Swaziland) Some Ethnoremedies Used for HIV/AIDS and Related Diseases in Swaziland (pp 20-26)

ABSTRACT

Mini-Review: Swaziland is one of the countries hardest hit by the HIV/AIDS pandemic. Traditional medicine is one of the major ways by which the scourge is being addressed. Many traditional medical practitioners (TMPs) in the country claimed that they have efficacious traditional remedies for HIV/AIDS and related diseases but there is no scientific data in support of their claims. However, since the majority of the population patronise the practice and since many TMPs claimed that their patients obtained relief from ailments associated with HIV/AIDS and were able to return to work, therefore, a review of the remedies used by the TMPs for treating the disease was carried out and is the subject of this paper. Plant materials are the main ingredients for preparing traditional medicine used for treating the disease. Fifty seven herbal remedies acclaimed to be efficacious and safe for the treatment of HIV/AIDS and related diseases in Swaziland are reviewed. Preparation of the ethnomedicines involved the use of different organs of 54 medicinal plants from 31 families. The herbal remedies were part of the remedies obtained from renowned traditional medical practitioners (TMPs) in the ethnomedical surveys conducted in the country. Most of the plants used for preparing the remedies are indigenous to Swaziland. The indigenous plants used for treating infections associated with HIV/AIDS have tremendous potential to contribute in the search for novel compounds for therapeutic purposes because their compositions have not been scientifically explored. It is recommended that the plant species should be subjected to chemical and pharmacological screenings to validate the claims of the TMPs on the efficacy and safety of the species.

Wafaa M. Kamel, Monier M. Abd El-Ghani, Mona M. El-Bous (Egypt) Taxonomic Study of Capparaceae from Egypt: Revisited (pp 27-35)

ABSTRACT

Original Research Paper: The systematic revision of the Egyptian species belonging to the family Capparaceae based on fresh materials with extensive field observations and herbarium materials is reported. This revision showed the presence of four genera *Boscia*, *Capparis*, *Cadaba* and *Maerua*. Species delimitation in *Capparis* was re-evaluated, resulting in the recognition of four species of *Capparis*: *C. decidua* (Forssk.) Edgew, *C. sinaica* Veill., *C. spinosa* L. (with three varieties viz., *spinosa*, *canescens* and *deserti*) and *C. orientalis* Veill. The last species is proposed to be elevated from var. *inermis* to the species level. Our results revealed also that leaves, stipules, flowers and fruit characters are of significant taxonomic value. A key for identification of the genera, species and varieties is provided. Type, synonyms, and selected specimens for each species are also presented.

Koutoua Séka, Hortense A. Diallo, Nazaire K. Kouassi, Sévérin Aké (Côte d'Ivoire) Screening Ten Yam (*Dioscorea* spp.) Varieties for Resistance to Yam mosaic virus and Cucumber mosaic virus in Côte d'Ivoire (pp 36-43)

ABSTRACT

Original Research Paper: Yam (*Dioscorea* spp.) production in Côte d'Ivoire is threatened by viral diseases. In order to provide high-yielding yam varieties to rural populations, the Swiss Center for Scientific Research (CSRS) obtained improved varieties from the IITA breeding program in Nigeria. Seven of these improved varieties (including *D. alata* and *D. cayenensis-rotundata* complex), selected for their good organoleptic characteristics and agronomic performances, as well as three locally grown varieties (Krenglè, Bètèt-bètè and Florido) were evaluated after mechanical inoculation with *Yam mosaic virus* (YMV) and *Cucumber mosaic virus* (CMV) separately. The parameters measured included disease severity (scores and indexes) and virus accumulation (overtime and in different plant parts) as determined by the enzyme-linked immunosorbent assay (ELISA) test. The results showed that all varieties became infected with YMV and all but Krenglè became infected with CMV. That variety seemed immune to CMV infection. Varieties TDr 89/02665, TDr 96/02629 and TDa 00/00010 were resistant to YMV. These varieties, in addition to TDr 95/18544, were also found to be resistant to CMV. Regardless of the virus, its accumulation depended on the variety, the plant parts tested and the physiological stage of the plants.

Nicaise A. Amancho, Nazaire K. Kouassi, Hortense A. Diallo, Alphonse Bouet, Abdourahamane Sangaré, Justin Y. Kouadio (Côte d'Ivoire) Report of High Resistance-Breaking Isolates of *Rice yellow mottle virus* in Côte d'Ivoire (pp 44-50)

ABSTRACT

Original Research Paper: In order to assess *Rice yellow mottle virus* (RYMV) epidemiological risks for a sustainable management of high resistance in rice in Côte d'Ivoire, the relationships between virus isolates and rice varieties were studied under artificial selection pressure. The results of the inoculation tests of the highly resistant varieties Gigante and Tog5681 with 120 isolates of RYMV obtained from the National Agricultural Research Centre (CNRA) indicated the existence of resistance-breaking virus isolates within 10 localities in the southern part of Côte d'Ivoire. Two pathogenic groups were found. The first one infected only Tog5681 and had a disease prevalence of 19.48% while the second group, showing a prevalence of 3.8%, overcame the resistance present in the two genotypes. Depending on the observed resistance phenotype, resistance-breaking pathotypes were divided into asymptomatic (detected by ELISA) and symptomatic (inducing symptoms) sub-groups. The differential interaction between isolates and plant genotypes are highlighted, although no close relationship was observed between the foliage colour of the infected varieties and the virus titer. The presence of such pathotypes in Côte d'Ivoire could undermine all successful sustainable management of yellow mottle based on the use of highly resistant varieties.

Awah Anna Selatsa (Cameroon/Germany), Abdou Tenkouano (Cameroon/Tanzania), Emmanuel Njukwe, Roger Noël Iroume (Cameroon), Paula J. Bramel (Nigeria) Morphological Diversity of Plantain (*Musa* sp. L. AAB Group) in Cameroon: Relationships to Farmer's Cultural Practices (pp 51-58)

ABSTRACT

Original Research Paper: Managing diversity or releasing new varieties into existing farming landscapes require a good understanding of farmers' practices. This study was carried out to assess the extent and cause of intra-field morphological diversity in plant communities of plantain farmers in Cameroon. Vegetative propagules ascribed by farmers to the popular varieties 'Assang-Da', 'Ebang', 'Elat', and 'Essong' were field established at the research stations of the International Institute of Tropical Agriculture for phenotypic evaluation. None of the varieties appeared to be a community of unique morphotypes with average similarity indices of 46.5% for 'Assang-Da', 48.3% for 'Ebang', 49.4% for 'Elat' and 55.8% for 'Essong', confirming the mixture nature of the varieties. Inter-variety phenotypic similarity coefficients ranged from 41.7% ('Ebang' vs 'Elat') to 45.0% ('Ebang' vs 'Essong'), equally showing considerable overlaps, yet sufficient phenotypic differentiation, between the varieties. Many migrants, being more distantly related to individuals in their respective assigned groups than to individuals ascribed to other groups, were identified in all variety groups, except 'Ebang'. In the absence of gene flow among plantain varieties, we attributed this pattern of diversity to farmer's inability to distinguish varieties when acquiring planting materials, or more likely, to a deliberate decision by farmers to distribute risk across different types. Testing and releasing new varieties, such as those derived from breeding, may have to conform to the mixture principle, in order to increase prospects for adoption by small-holder farmers.

Ibironke A. Ajayi (Nigeria) Comparative Study of the Fatty Acid Composition of Some Seed Oils from Nigeria (pp 59-62)

ABSTRACT

Original Research Paper: The fatty acid composition of 10 different seeds from Nigeria was determined. The data showed that most seeds (except for *Brachystegia eurycoma* and *Dacryodes edulis*) could be placed into one major group; they all contained more unsaturated fatty acids ranging from 55.58 to 79.93% for *Tamarindus indica* and *Monodora myristica*, respectively. Two unsaturated fatty acids, namely oleic (21.97-60.68%) and linoleic (5.73-39.42%) were the principal fatty acids. The two alone accounted for 25.47 to 75.71% of the total fatty acids found in the oils. The oil content of the seeds ranged between 3.77 and 55.05% of the seeds. The composition of the oils is nutritionally significant and the oils have potential for edible purposes.

Hassan Ghareeb, Usama Aly, Ahmed El-Kazzaz, Moemen Hanafy (Egypt) Optimization of Rice Regeneration System from Mature Seeds of Five Egyptian Rice Cultivars (pp 63-66)

ABSTRACT

Original Research Paper: Establishment of a suitable system for plant regeneration of rice calli derived from mature embryos is a prerequisite for plant transformation. We report here high frequency plant regeneration from mature seed-derived calli of rice. An experiment with five Egyptian rice cultivars ('Giza 159', 'Giza 171', 'Giza 172', 'Giza 176' and 'Reiho') showed that callus induction and growth were significantly affected by genotype and medium composition. Murashige and Skoog (MS) medium supplemented with 2 mg/l of 2,4-dichlorophenoxy acetic acid (2,4-D) gave the highest incidence of callus induction for 'Giza 176' and 'Reiho', respectively. The regeneration frequencies were dependent on the genotype, 6-benzylaminopurine (BAP) concentration and callus type. 'Reiho' and 'Giza 176' showed the highest callus induction ability (100%), when calli from 'Giza 176' and 'Reiho' were induced on 2 and 1.5 mg/l 2,4-D, respectively, and subsequently regenerated on medium supplemented with 0.5 mg/l of 1-naphthaleneacetic acid (NAA) and 3 mg/l BAP. Thus, it is misleading to consider the growth dynamic of callus as the only parameter in optimizing a regeneration protocol. The regeneration ability of the callus type should also be taken into account.

Adamu Usman Izge, Bwala Isa Richard, Michael Mamman Degri (Nigeria) Varietal Resistance and the Use of Fungicide for the Integrated Management of Sorghum Anthracnose in Parts of North-Eastern Nigeria (pp 67-72)

ABSTRACT

Original Research Paper: Sorghum [*Sorghum bicolor* (L) Moench] anthracnose caused by *Colletotrichum sublineolum* is a serious and destructive foliar disease and a major production problem of sorghum in Nigeria. Field experiments were conducted to determine the efficacy of Apron Star 42 WS seed dressing fungicide and varietal resistance for the integrated management of leaf sheath and midrib anthracnose disease of sorghum in Northeastern Nigeria. The treatments consisted of improved sorghum varieties and local sorghum varieties that were both fungicide treated and untreated. Seed dressing with fungicide significantly reduced the incidence and severity of anthracnose disease in sorghum. The local variety 'Warwabbashi' recorded the highest disease incidence (62.2%), while 'Bauchi Early Selection' and 'Ex-Mali' consistently had the lowest disease incidences. Fungicide-treated varieties significantly lowered the severity of leaf sheath anthracnose at all growth stages. The fungicide also lowered the severity of midrib anthracnose and varieties differed both in their levels of leaf sheath and midrib disease severity. 'Warwabbashi' had the highest severity of leaf sheath anthracnose (75.9%) while 'Warwabbashi' also recorded the highest midrib disease severity (65.9%) indicating that it is a susceptible variety. 'ICSV 111' and 'Bauchi Early Selection' recorded the lowest leaf sheath and midrib anthracnose severity. All varieties performed differently in their grain yield: 'Ex-Mali' recorded the highest grain yield (1234.0 kg/ha) followed by 'Paul Biya' and 'Ex-Mali', at 1151.0 and 1122.0 kg/ha, respectively, despite their high levels of anthracnose incidence and severity.

Ahmed Mansour, Hany M. Ismail, Mohamed F. Ramadan (Egypt), Gábor Gyulai (Hungary) Comparative Genotypic and Phenotypic Analysis of Tomato (*Lycopersicon esculentum*) Cultivars Grown under Two Different Seasons in Egypt (pp 73-79)

ABSTRACT

Original Research Paper: Tomato (*Lycopersicon esculentum* Mill.) is considered as important and economic agricultural crop all over the world. For improving yield and yield components, varieties are often evaluated under different conditions. Morphological (growth and yield), biochemical (oil, moisture content, and radical scavenging activity) and molecular diversity (RAPD and ISSR) of 11 tomato (*L. esculentum*) cultivars ('Aledo VF', 'Carmeuco 201M', 'Castle-rock', 'Falkon', 'Money Maker', 'Peto 86', 'Red Star', 'Super Marmande', 'Super Queen', 'Super Strain -B' and 'UC97-3') were analyzed under heat stress in Egypt to assist breeders in selecting heat tolerant cultivars and nutritional quality. Cultivars 'Aledo VF', 'Peto 86' and 'Red Star' were found to have the most vigorous growth habit, while 'Super Queen' had the most significant average fruit weight,

yield/plant and total yield/m² under heat stress. For nutritional quality, cultivars 'Super Marmande' and 'Aledo VF' showed the highest oil content, while 'Aledo VF' and 'Money Maker' showed the highest radical scavenging activity (RSA). Molecular diversity of cultivars was detected using two molecular markers systems of RAPD (random amplified polymorphic DNA) and ISSR (inter-simple sequence repeat) providing further facilities for molecular comparison.

Samaha A. H. Ouda, Rashad Abou Elenin, Mouhamed A. Shreif (Egypt) Determination of Water Productivity of Maize Yield under Deficit Irrigation in Middle Egypt (pp 80-85)

ABSTRACT

Original Research Paper: A Yield-Stress model was calibrated and validated for maize yield and consumptive use data using a three-year field trial at Beni Sweif governorate, Middle Egypt under two treatments of water quality (fresh and agricultural drainage irrigation) and two irrigation treatments of water quantity (required and excess irrigation). The goodness of fit between measured and predicted values by the model was tested by calculating the percentage difference between measured and predicted values of yield and consumptive use, in addition to root mean squared error per observation and Willmott index of agreement. Then, the model was used to predict the effect of three deficit irrigation treatments (skipping the last irrigation, and 80 and 70% of full required irrigation or 80 and 60% of full excess irrigation). Water productivity was calculated in all cases. The results showed that the model performance was highly acceptable in predicting maize yield and consumptive use. Low yield losses occurred under both fresh and agricultural drainage irrigation water as a result of 30 and 40% irrigation water saving under required and excess irrigation, respectively. Water productivity gradually increased under all deficit irrigation treatments, which suggested that there is a high potentiality to save an ample amount of irrigation water to be used in cultivating more lands.

Luke N. Ukiwe, Chris I. Nwoko, Chris O. Akalezi (Nigeria) The Role of pH and Acids in the Extraction and Precipitation of Lignin in Cashew (*Anacardium occidentale*) (pp 86-88)

ABSTRACT

Original Research Paper: The extent of extraction and precipitation of lignin was determined using inorganic and organic acids at different pHs (3.0, 4.0, 5.0). Oxalic acid (organic acid) precipitated the highest amount of lignin (14.85 g) at pH 3.0 while sulphuric acid (inorganic acid) precipitated the lowest amount (2.00 g) at pH 4.0. However, oxalic acid precipitated more lignin at pH 3.0, 4.0, and 5.0 than sulphuric acid at the same pH levels. At these three pH levels there were no visible differences in lignin extraction for any given acid. Overall, there was no advantage of one acid over another in precipitating lignin since both acids (inorganic and organic acid) were found to be effective in extracting lignin from cashew (*Anacardium occidentale*) at pH 3.0, 4.0 or 5.0 using the alkaline Kraft process. Infra-red spectrophotometry showed absorption bands which are characteristic of the lignin compound.