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Morphological and physiological characteristics of sic tobacco cultivars (Nicotiana tabacom) in special reference to the quality and economic yield

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In order to understand more clearly some of the morphological and physiological characteristics of tobacco which may be important in relation to the quality and economic yield, six variety of tobacco were examined for some morphological, physiological and chemical characteristics such as: height, stem, diameter, leaf number, surface area of leaf, length and width of leaf, dry weight of stem, leaf and root, and leaf shape index; Leaf Area Index (LAI), Crop Growth Rate (CGR), Net Assimilation Rate (NAR), Relative Growth Rate (RGR), Leaf Weight Ratio (LWR), Specific leaf Area (SLA); percentage of potash, nitrogen, sugar, ash, nicotine in different plant parts in different phenological stage; burning time of leaf, quality index and leaf yield. The six fire-cured varieties were: DRV1, DRV10, Madole, Kentucky 171, Toleza68 and Western. Plants were grown in a unheated greenhouse and then seedling transplanted into the field in spring year 1999. A randomized block design was used, with four blocks. Results showed that there were significant differences between different cultivars in dry matter of leaf yield and sugar percentage in plant parts. Madole had DRV1 had the highest and the lowest dry matter of leaf yield, respectively (2679 vs. 1789 kg). But percentage of nicotine and ash content of different plant parts, burning time of leaf and quality index of leaf were not different between different varieties. Amount of potash and nizrogen in different plant parts between different varieties were different at different stages of growth. The maximum and minimum absorption of potash and nitrogen were observed at early and late stages of growth, respectively. Results indicate that the high yielding varieties in ealry stages of growth had a higher LAI, CGR, RGR, NAR, LWR, LAR and SLA compare with those of low yielding varieties.

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Drought tolerance in lentil: Root parameters

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Lentils (*Lens culinaris* Medikus ssp. *culinaris*) which are grown in Mediterranean-type are often subjected to terminal drought. Drought tolerance is closely related to the distribution of root systems in the soil, which is, in general, the consequence of root development in early growth. We studied seedling root characters on a diverse set of lentil genotypes (40) for two seasons (1997-9) under field conditions and related these to adjacent yield trail data. Specifically, 35-day old seedlings grown in pots in open-air were assessed for stem length, stem weight, tap root length, lateral root number, total root length and total root weight. Combined analyses over years showed that the genotypes differed significantly with respect to these characters. Yield per plant was highly correlated with taproot length (r=0.78), lateral root number (R=0.71) and total root length (R=0.63). Total root length was significant correlated with lateral root number (r=0.82), root weight (r=0.73) and tap root length (r=0.68). Broad-sense heritability estimates varied greatly (39-76%), where high-to-moderate heritability was exhibited by taproot length (76%) and lateral root number (68%). Clearly, taproot length and lateral root number are the important root traits associated with lentil performance under drought in typical Mediterranean environments.

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Response of sunflower (Helianthus annuus L.) cultivars to photoperiod and temperature

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Utilization of biofortified system for increasing Lentil (lens culinaris Medik) plants under new reclaimed Sandy soil conditions

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Under Egyptian conditions a great attention as being devoted to new reclaimed land to increase the cultivated area and reducing the gap between production and consumption. Lentil like other pulses has the ability to fix atmospheric nitrogen through symbiotic root nodule bacterial. This ability led us to establish new farming system (biofortified) aimed at reducing the great consumer of chemical fertilizer and producing healthy food free from the biomagnified agrochemical residues. Field experiments were conducted at sandy soil characterized by low fertiel soil. Results showed that biofortified system sole or associated with organic manure as well as chemical fertilizer directly increased yield and yield component characters. Seed quality was also exhibited the same trends.