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Evaluation of Synbiotics as Biopesticides Against Insect Pests of Okra (*Abelmoschus esculentus* Mot.)

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This study investigated the effects of synbiotics on the early growth of okra (cv. Kirikou) and as biopesticides. The treatments included two probiotics viz. *Lactobacillus plantarum* (LP) and *Bacillus subtilis* (BS), each mixed with oligofructose as prebiotic, synthetic pesticide containing Lambda-cyhalothrin + dimethoate and a non-synbiotic treatment. Cured poultry manure was applied to all plots at the rate of 5.5 t ha⁻¹ before planting; a treatment without synbiotic and poultry manure was included as an additional check. Experimental design was randomized complete block with four replications. Populations and types of insects were determined using visual searching and a sweep net. Data were collected weekly on plant height, number of leaves and stem girth from 4 weeks after planting (WAP). At 8 WAP, plants were scored for vigour and hopper-burn symptoms on leaves, each on a scale of 1 to 9 (1 = very high vigour, 9 = very poor vigour; 1 = no foliar symptoms, 9 = severe foliar symptoms) at which time leaf area per plant was also determined. Insects found on the plants were *Aphis gossypii* (AG), leafhoppers, and flea beetles. Populations of insect species were low; they ranged from 0.7 - 1.6 per plant for AG and 1.0 - 2.5 per plant for leafhoppers, with slight defoliation observed. Differences among treatments at 8 weeks after planting were not significant for plant height, number of leaves per plant, and stem girth. Leaf area ranged from 260.2 cm² per plant for the no manure-no synbiotic treatment to 357.3 cm² per plant for the synthetic insecticide treatment. Differences among treatments were significant for vigour score and hopper-burn symptoms; the insecticide treatment had the highest vigour (lowest score of 2.5) and lowest hopper-burn symptoms (score = 2.5), while the no manure-no synbiotic treatment and the with manure-no synbiotic treatment had the highest scores for both traits (5.3 - 6.2), and the differences were significant. Mean vigour scores of the plants treated with synbiotic containing LP and plants sprayed with insecticide were not significant, indicating that LP has promise as an agroecology option for improving resilience towards the sustainable production of okra in Nigeria.

Keywords: Aphids, *Bacillus subtilis*, Biopesticides, *Lactobacillus plantarum*, Defoliation.