

## Effects of Dietary Black Mustard, *Brassica nigra*, Seed on Growth and Health Status in African Catfish, *Clarias gariepinus*

LEE SEONG WEI, ALBARIS B TAHILUDDIN, AND WENDY WEE

*The current study investigates the beneficial effects of dietary black mustard, Brassica nigra, seed powder (BN) on the growth and health of African catfish, Clarias gariepinus. Several analyses were conducted including growth performances, hematological, digestive enzyme activity, antioxidative responses, heat tolerance, and disease-resistance against Aeromonas hydrophila. The African catfish were given BN-containing diets at 0 (control group), 2, 3, and 4 per cent followed by heat exposure at 35°C and A. hydrophila bacterial infection. After eight weeks, African catfish fed with BN diets demonstrated significantly higher ( $p<0.05$ ) in terms of final weight, weight gain, and specific growth rate in comparison to the control group, with the highest being in the fish fed at 3 and 4 per cent. Furthermore, fish fed with BN diets showed significantly lower ( $p<0.05$ ) feed conversion ratio compared to the control group, with the lowest being in the fish received at 3 and 4 per cent. Hematological analysis revealed that fish fed with BN diets possess significantly higher ( $p<0.05$ ) white blood cell, hematocrit, and hemoglobin in comparison to the control group, with the highest being in the fish fed at 3 and 4 per cent. Digestive enzymes including amylase, lipase, and protease activities were found significantly higher ( $p<0.05$ ) in the fish which received BN diets compared to the control group, with the highest being in the fish fed 3 and 4 per cent. A similar trend was also in the results of antioxidative responses in which catalase, superoxide dismutase, and glutathione peroxidase were significantly higher ( $p<0.05$ ) before and after heat stress in the fish that received BN diets compared to the control group, with the highest being in the fish fed 3 and 4 per cent. Besides that, fish fed with BN diets performed significantly higher cumulative survival rate post eight weeks A. hydrophila infection. The regression analysis revealed that dietary BN diets which ranged from 0.2108 to 0.8276 per cent could boost African catfish production.*

**Keywords:** Hematological, digestive enzyme, heat stress, antioxidative response, disease resistance, Aeromonas hydrophila.