

ABSTRACT

The present study was conducted to elucidate the efficacy of *Withania somnifera* (ashwagandha) root powder (WRP) as a functional fish feed additive on growth performance and antioxidant status of grass carp (*Ctenopharyngodon idella*). Sixty four grass carp fingerlings were allocated in four groups as control (WRP 0%), WRP 1% (1g/kg), WRP 2% (2g/kg) and WRP 3% (3g/kg) in replicates (16 fish/ treatment). Fish were fed with control and WRP administered diet twice a day for 60 days. At the termination of feeding trial growth parameters (weight gain% and specific growth rate) and oxidative stress response in liver including lipid peroxidation (LPO) level, superoxide dismutase (SOD) activity, glutathione S-transferase (GST) activity and glutathione (GSH) activity were analyzed. Results illustrated that fish in all groups exhibited good health performance but the highest weight gain % and SGR was recorded in fish fed with 2g/kg WRP. The change in LPO level, SOD, GST and GSH activity in all groups was non-significant ($P < 0.05$). However the maximum SOD, GST and GSH activity was recorded in fish fed WRP 2%, WRP 1% and WRP 3% respectively. The findings of current study suggests that dietary supplementation of *Withania somnifera* root powder can be used to improve the growth performance and oxidative stress response of grass carp (*Ctenopharyngodon idella*).