ABSTRACT

Predator–prey interactions are important drivers in structuring ecological communities. However, despite widespread acknowledgement that individual behaviours and predator species regulate ecological processes, studies have yet to incorporate individual behavioural variations in a multipredator system. We quantified a prevalent predator avoidance behaviour to examine the simultaneous roles of prey personality and predator hunting mode in governing predator–prey interactions. Mud crabs, *Panopeus herbstii*, reduce their activity levels and increase their refuge use in the presence of predator cues. We measured mud crab mortality and consistent individual variations in the strength of this predator avoidance behaviour in the presence of predatory blue crabs, *Callinectes sapidus*, and toadfish, *Opsanus tau*. We found that prey personality and predator species significantly interacted to affect mortality with blue crabs primarily consuming bold mud crabs and toadfish preferentially selecting shy crabs. Additionally, the strength of the predator avoidance behaviour depended upon the predation risk from the predator species. Consequently, the personality composition of populations and predator hunting mode may be valuable predictors of both direct and indirect predator–prey interaction strength. These findings support theories postulating mechanisms for maintaining intraspecies diversity and have broad implications for community dynamics.