

Nigella sativa fixed and essential oil improves antioxidant status through modulation of antioxidant enzymes and immunity

ABSTRACT

The onset of 21st century witnessed the awareness among the masses regarding the diet-health linkages. The researchers attempted to explore traditional products/plants were in the domain of pharmacy and nutrition focussing on their health benefits. In the present research intervention, we investigate the role of Nigella sativa fixed oil (NSFO) and essential oil (NSEO) in improving antioxidant status and modulation of enzymes. The National Institute of Health (NIH) provided us 30 Sprague Dawley rats that were equally placed in three groups. The groups were fed on their respective diets (56 days) two experimental diets i.e. D2 (NSFO @ 4.0%) and D3 (NSEO @ 0.30%) and control. The indices pertaining to antioxidant status, antioxidant enzymes, and parameters pertaining to immunity were evaluated at 4 weeks interval. The experimental diets (NSFO@ 4.0% & NSEO@ 0.30%) modulated the activities of antioxidant enzymes i.e., catalase (CAT), superoxide dismutase (SOD), glutathione transferase (GST), glutathione reductase (GR) and glutathione peroxidase (GPx), positively. Indices of antioxidant status like tocopherols and glutathione were in linear relationship with that of GPx, GR and GST ($P < 0.01$). Myeloperoxidase activities were in negative correlation with GST ($P < 0.01$) but positive correlation with some other parameters. In the nutshell, the fixed and essential oil of Nigella sativa are effective in improving the indices pertaining to antioxidant status, however, the immune boosting potential needs further clarification. However, authors are of the view that there is need to explore the molecular targets of Nigella sativa fixed and essential oils. Findings from such studies would be useful to validate this instant study for health promoting potential against diabetes mellitus and cardiovascular disorders.

Keyword: Medicinal plants; Functional foods; Nigella sativa; Essential oil; Antioxidant status; Antioxidant enzymes