Radio-protective effects of Nigella sativa oil on oxidative stress in tongue tissue of rats.

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Abstract

OBJECTIVE: The aim of this study was to evaluate the effects of Nigella sativa (N.S.) oil against radiation-induced oxidative stress in the rat tongue.

MATERIAL AND METHODS: Thirty-two Sprague-Dawley rats were randomly divided into four equal groups. Group 1 [control group (C)] did not receive N.S. oil or irradiation. Group 2 [sham control group (CN)] did not receive N.S. oil or irradiation but received 1-ml saline orally, plus sham irradiation. Group 3 [irradiation group (R)] received irradiation, plus 1-ml saline orally. Group 4 [irradiation plus N.S. oil group (RN)] received irradiation plus 1 g kg-1 per day of N.S. oil orally for 10 days. The animals were euthanized on day 10, and tongue tissues were collected for evaluating biochemical oxidative parameters.

RESULTS: The oxidative stress index, total oxidant status and lipid hydroperoxides levels in the R group were statistically higher than those in the C, CN and RN groups. The paraoxonase levels in the R group were statistically lower than those in the C, CN and RN groups. No statistically significant differences were detected between any of the groups, in terms of total antioxidant status and the arylesterase, ceruloplasmin and total sulfhydryl group levels.

CONCLUSION: Nigella sativa (N.S.) oil may be a beneficial agent in protecting against ionizing radiation-related tissue injury.

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