

THE PROTECTIVE EFFECT OF BERGAMOT OIL NON VOLATILE FRACTION ON LOX-1 EXPRESSION IN BALLOON INJURY-RELATED NEOINTIMA FORMATION

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Lectin-like ox-LDL receptor-1 (LOX-1), the receptor for oxydized LDL, has recently been suggested to be involved in smooth muscle cell (SMC) proliferation and neointima formation in injured blood vessels, an effect mediated by free radical generation. Here we evaluated the effect of the non volatile fraction (NVF), the antioxidant component of Bergamot essential oil (BEO), on LOX-1 expression and free radicals generation in a model of rat angioplasty (PTCA). In animals undergoing balloon injury a significant restenosis with neointima formation occurred, an effect accompanied by increased expression of LOX-1 receptor and nitrotyrosine staining. Pre-treatment of rats with BEO-NVF reduced the neointima formation, LOX-1 expression and nitrotyrosine staining. Thus, BEO-NVF possesses antioxidant properties in vivo, reducing oxidative stress which triggers both neointima formation and LOX-1 expression. These results suggest that natural antioxidants may be relevant in the treatment of vascular disorders in which proliferation of SMCs and ox-LDL-related endothelial cell dysfunction are involved.