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Qamar Uddin Ahmad

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THE VASCULAR PROTECTIVE EFFECTS OF POLYPHENOLS

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Polyphenols have been proven, both in animal and human studies to be beneficial as vascular protective agents. The effect is claimed to be related to the compound antioxidative properties. This effectively blunts the vasoconstriction process, reported to be due to the excessive generation of reactive oxygen species, as observed in many *in vitro* studies using isolated arteries. The mechanism of the vasodilation process involved the endothelium, or it could also be endothelium-independent. In many studies the former seemed to be the main pathway. The role of nitric oxide in endothelium-dependent vasodilation activity of the polyphenols is attributed to its protective effect on the soluble gas from deterioration by ROS, as it is capable of neutralizing the radicals. Polyphenols has also been proven to stimulate endothelial nitric oxide synthase to produce more NO, and hence improve vasorelaxation. Another alternative pathway of the endothelium-dependent vasodilation that is also enhanced by polyphenols is endothelium-dependent hyperpolarizing factor. It was suggested by many authors that this pathway compensates for the failure in NO-dependent vasodilation, but many polyphenol entities have been proven to stimulate this pathway, involving inward rectifier K+ channels and large conductance Ca^{+2}-activated K^{+} channels. The third type pf vasodilation is endothelium-