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Antioxidant and renoprotective profiles of catechin, quercetin and taxifolin in rotenone-administered rats

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Nephrotoxicity with the attendant risk of progression to kidney failure is becoming a growing problem. Current orthodox treatment options for nephrotoxicity and kidney failure are limited and there is the need for alternative or complementary approaches. Flavonoids and other polyphenolics are promising candidates for the management of kidney dysfunction. This study aimed at evaluating the protective property of the structurally related flavonoids, catechin, quercetin and taxifolin in rotenone induced nephrotoxicity. Male Wistar rats were administered 1.5 mg/kg rotenone (s.c.) for ten days followed by post-treatment with catechin (5, 10 or 20 mg/kg), quercetin (5, 10, or 20 mg/kg) and taxifolin (0.25, 0.5 or 1.0 mg/kg) for three days (s.c.). Results obtained showed that catechin, quercetin and taxifolin significantly attenuated oxidative stress and renal injury that accompanied rotenone intoxication. Quercetin was apparently the most effective flavonoid but taxifolin, despite being administered at the lowest doses appeared to be equally effective as quercetin or even more effective. The results also suggest a correlation between the structure of the flavonoids and their renoprotective effects.

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