Improvement of Kidney Dysfunction by Mixtures of Polar and Non Polar Fractions of Plant Foods

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Renal dysfunction is considered as one of the most common manifestations of severe illness. In the present research, the protective effect of mixtures of polar and non polar fractions of avocado, walnut, flaxseed and *Eruca sativa* seeds were tested during induction of kidney dysfunction in rats. Total phenolic contents, fatty acids and phytosterols were determined in the mixtures. Safety of the mixtures was assessed through acute lethal toxicity test and cytogentic study. Results showed that walnut mixture was of the highest content of phenolic compounds. Fatty acids analysis revealed that oleic acid (33.1%), linoleic acid (66%) and linolenic acid (48.4%) were the major unsaturated fatty acids in *Eruca sativa* oil, avocado oil and flaxseed oil, respectively. Linoleic acid (46.6%) was the major unsaturated fatty acids in walnut oil. Phytosterol assessment showed the presence of campesterol, stigmasterol and β-sitosterol in oils of the studied plants. Induction of kidney dysfunction by cisplatin treatment resulted in significant increase in plasma urea, creatinine and malondialdehyde along with significant reduction of plasma albumin, total protein, catalase activity and total antioxidant level as well as reduction in creatinine clearance compared to control healthy group. Histopathological examination confirmed the induction of kidney dysfunction. Some sorts of chromosomal aberration and sperm-shape abnormalities were noticed after cisplatin treatment. Administration of different mixtures produced variable improvements in biochemical, histopathological and cytogenetic parameters. All mixtures showed complete safety.