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Biological activity of persimmon (*Diospyros kaki*) peel extracts.

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Fractionated extracts of persimmon (*Diospyros kaki*) peels were studied for cytotoxic activity, multidrug resistance (MDR) reversal activity, anti-human immunodeficiency virus (HIV) activity and anti-*Helicobacter pylori* (*H. pylori*) activity. The potent cytotoxic activity against human oral squamous cell carcinoma cells (HSC-2) and human submandibular gland tumor (HSG) cells was found in the acetone fractions [A4 and A5] with IC₅₀ ranging from 21 to 59 micro g/mL. However, the cytotoxic activity was not correlated with the radical intensity of the fractions. Three 70% MeOH extract fractions [70M2-4] produced radical and efficiently scavenged the O₂^{·-} produced by hypoxanthine and xanthine oxidase reaction. All of the fractions tested were not effective for anti-*H. pylori* and anti-HIV. Fractions H3 and H4 of hexane extract, and M2 and M3 of MeOH extract showed a remarkable MDR reversal activity comparable with that of (+/-)-verapamil (a positive control). These results indicate the therapeutic value of persimmon peel extracts as potential antitumor and MDR-reversing agents.