

# Herbal tonic for radiotherapy

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Antioxidant extracts of the leaves of the Gingko biloba tree may protect cells from radiation damage, according to a study published in the *International Journal of Low Radiation*. The discovery may one day be used to help reduce side effects in cancer patients undergoing radiotherapy.

Chang-Mo Kang of the Korea Institute of Radiological and Medical Sciences in Taegu and colleagues are interested in the protective effects of well-known herbal remedies of which Gingko biloba is one. *G. biloba* is a unique tree species with no close living relatives and extracts of its leaves contain antioxidant compounds including glycosides and terpenoids known as ginkgolides and bilobalides.

These compounds are thought to protect [cells](#) from damage by free radicals and other reactive oxidizing species found in the body. These are generated continuously by the body's normal metabolism, and in excess in some diseases or after exposure to pollution or [radiation](#). They damage proteins, DNA and other biomolecules and left unchecked can kill cells.

As such, extracts of certain plants that contain antioxidants, including *G. biloba*, have attracted interest for their pharmacological activity. *G. biloba* is currently sold as a herbal supplement and there are numerous claims for health benefits, including the possibility of preventing the onset of dementia or Alzheimer's disease.

Kang and colleagues have now collected human white blood cells,

lymphocytes, from healthy donors aged 18 to 50 years. They treated half of these cells with commercially available G. biloba extract in the laboratory and doused the other half with salt solution as an experimental control. They then compared the effects of [gamma radiation](#) from radioactive cesium on the white blood cells compared to the untreated control samples.

The team uses a light microscope to look for lymphocytes undergoing programmed cell death, or apoptosis, as a result of radiation exposure. They found that there was a significant increase in apoptosis in the untreated cells compared with those treated with G. biloba extract. Almost a third of the untreated cells underwent apoptosis compared with approximately one in twenty of the treated cells. Parallel studies with laboratory mice also demonstrated a similar protective effect against radiation poisoning.

The results suggest that the extracts can neutralize the [free-radicals](#) and oxidizing agents produced in the cells by the radiation and so prevent them from undergoing apoptosis.

More information: "Protective effect of Gingko biloba against radiation-induced cellular damage in human peripheral lymphocytes and murine spleen cells" in *Int. J. Low Radiation*, 2009, 6, 209-218

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