Details of Technology

Name of Technology	Anti-cancer agent acting on DNA damage checkpoint, obtained from *Shidoke* (*Cacalia delphiniifolia*), an edible wild plant	Life Science
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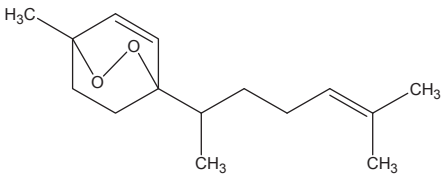
Key words	edible wild plant *Shidoke* (*Cacalia delphiniifolia*), anti-cancer agent, DNA damage checkpoint in yeast, apoptosis	

What kind of technology is this?

Outline

The anti-cancer component in *Shidoke* (*Cacalia delphiniifolia*), an edible wild plant, has apoptosis-inducing activity in human cancer cells.

Using a screening system for the detection of substances with possible preventive and therapeutic effects on lifestyle-related diseases, the activity of various food extracts was examined. When activity was observed, the active component (bioprobe) was isolated and purified, and the study on the structural identification and the mode of action was performed (chemical biology). As a result of screening using yeast with a mutated gene involving a DNA damage checkpoint (Δ*RAD9*), we found an endoperoxide compound of bisabolane sesquiterpene (figure shown below) in *Shidoke* (*Cacalia delphiniifolia*), an edible wild plant, and submitted an patent application for it as an anti-cancer agent. The compound has a unique mode of action, which has not been found in the existing anti-cancer agents.



Endoperoxide of bisabolane sesquiterpene
(Patent application No. 2006-058658)

What are its applications?

①Development of the functional substance itself as a pharmaceutical and a supplement.
②Development as a component of functional foods such as Food for Specified Health Use, utilizing its functional property.

Related patents	"DNA damage checkpoint activator." Japanese Patent Laid-Open No. 2007-238450
Related materials	Kimura, K. et al. "Plant-derived Ca^{2+} signal transmission inhibitors screened with yeast." *Bioscience and Industry, 64*, 214-218 (2060). Kimura, K.: "Functional substances obtained from foodstuffs by using enzymes and yeast with gene mutation -Aiming to bring drugs and foods together." The *Food Industry, 50(6)*, 34-43 (2007).

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