

THE UNIVERSITY OF THE SOUTH PACIFIC

Introduction

Queen Elizabeth Barracks

Suva

Government House

Parliament

Slipway

Break Water

Suva Harbour

Leucate Bay

Leucate Island

Nakulau Island

Makuluva Island

0 2 Kilometres

0 2 Kilometres

The diagram illustrates the chemical structure of Trans-resveratrol, a polyphenolic compound found in Fijian Peanuts. The structure is shown as a central stilbenoid core with two phenolic rings, each substituted with a hydroxyl group (OH). A red arrow points from the text 'Fijian Peanuts' to the structure, and another red arrow points from the structure to the text 'Trans- resveratrol'.

The diagram also highlights three potential health benefits of Trans-resveratrol, each represented by a green arrow pointing to a corresponding image and text box:

- Potential to cure heart diseases**: Accompanied by an image of a human torso showing the heart and lungs.
- Potential to cure cancer**: Accompanied by an image of a human torso showing the chest area with a red glow indicating cancer.
- Promote aging**: Accompanied by an image of a woman's face showing signs of aging.

The background of the diagram is a close-up image of Fijian Peanuts.

Methodology

Peanuts were crushed using blender

7 gram of the crushed peanut samples were weighed and suspended in 90% ethanol

The extract and combine effluents was filtered

8 mls of filtered extract was pushed through the clean up column (Dianium column)

the sample was prepared in the mobile phase (40: 60) acetonitrile and water

Sample was analyzed using the reverse HPLC method

HPLC

The figure displays three chromatograms (Chromatogram 1, 2, and 3) used for the identification of trans-resveratrol. Chromatogram 1 shows the trans-resveratrol standard with a major peak at 20.740 minutes. Chromatogram 2 shows the sample (Fijian peanut) with a peak at 20.761 minutes. Chromatogram 3 shows the sample with standards added, with a peak at 20.668 minutes. A red arrow points from the standard peak to the sample peak, and a red double-headed arrow points between the sample peak and the spiked sample peak, indicating the identification of trans-resveratrol in the sample.

Results

trans-resveratrol in standard

Chromatogram 1

Chromatogram 2

Trans-resveratrol in Fijian peanut

Sample spike with standards

Chromatogram 3

Run no:	Peak area (unspike sample)	Peak Area (spike sample)	Recov ery	Concentration of trans-resveratrol in Fijian peanut (µg/g)
1	4941994	15331584	106%	1.78
2	13183160	14776249	Concentration of trans-resveratrol in Fijian peanut	
mean	9062577	15053916		

Peanut type	Genotype cultivar	Resveratrol ($\mu\text{g/g}$)	SD
Spanish	Small White Spanish	1.792	0.616
Spanish	Spanette	0.126	0.107
Virginia	NC-18016	0.306	0.146
Virginia	Early Bunch	0.129	0.194
Runner	White Runner	0.069	0.029
Runner	Florunner C1	0.047	0.072
Spanish	GA 207-3-4	0.057	0.066
Runner	GA 207-2	0.056	0.026
Virginia	NC-9	0.052	0.084
Runner	Florispan C1	0.049	0.087
Virginia	NC-17291	0.048	0.070
Fijian peanut	Fijian White	1.781	0.720

Trans-resveratrol in Fijian peanut compared to other countries

- The trans-resveratrol in Fijian peanut was found to be 1.78µg/g which is three-four times higher than other data obtained in previous studies but is comparable to peanut cultivar, small Spanish white Which has the concentration of 1.79µg/g.
- With the health care cost always going to be a major issue in the South Pacific region it would be effective to continue research required to assist in promoting the awareness and consumption of foods (such as peanuts) rich in natural occurring antioxidant (such as resveratrol). Thus it is imperative that data on the presence of resveratrol in peanuts from Fiji is accumulated in view of having it as a biochemical marker for peanuts promotion on various healthful benefits such as heart diseases and cancer.