Kava (also called kava-kava) grows widely in the western Pacific. The roots of the plant are used to prepare a drink that is reputed to have mild sedative properties.

Kava consumption inversely correlates with cancer incidence, suggesting that kava has chemopreventive properties.

A group of compounds in kava that may be involved in its chemopreventive properties are the flavokawains.

**Kava Fractionation**

To determine if certain compounds in kava were more active than others, the kava extract was fractionated –

- Kava root was ground to a fine powder
- The powder was extracted with ethanol – this was the ethanolic kava extract
- Part of this ethanolic extract was fractionated by silica gel chromatography into two fractions:
  - fraction I - Polar
  - fraction II - Nonpolar
- The solvents were removed from the extracts prior to incorporation into the diets

**Animal Study Experimental Design**

To determine if the kava extracts reduced the risk of colon cancer, the extracts were fed to rats given a colon-specific chemical carcinogen –

- Rats were fed one of four diets:
  - Purified diet – Basal
  - Basal diet + 0.5% ethanolic kava extract
  - Basal diet + 0.5% fraction I of kava
  - Basal diet + 0.5% fraction II of kava
- After 3 weeks on the diets, rats were given the colon carcinogen dimethylhydrazine 2X, one week apart, at a dose of 50 mg/kg body weight
- After 12 more weeks on the diets, rats were killed and colon and liver harvested
- Colonos were stained and evaluated for the number of pre-cancerous lesions (aberrant crypt foci, ACF) and mucin staining pattern of the ACF
- Livers were examined histologically for evidence of pathology

**Conclusions**

- Feeding kava appears to reduce the risk of colon cancer
- Different fractions of kava seem to be equally effective
- No evidence of liver damage was detected in animals consuming kava

All three extracts of the kava – ethanolic, polar, and nonpolar – tended to reduce ACF number, the marker of colon cancer risk. The combined kava groups were significantly different than the control group.