

CHAPTER V

CONCLUSION

The chemical components and nutritive values of Niang beans were assessed. The results showed that they contained protein (7.9 gm%), fat (0.2%), carbohydrate (36.2%) some vitamins (vitamins B₁, B₂, C and folic acid) and some minerals (calcium, phosphorus and iron). Niang beans also supply Calories (183 Calories/100 gm). Eighteen amino acids, including all 8 essential amino acids, i.e. valine, leucine, isoleucine, threonine, methionine, phenylalanine, tryptophan and lysine, were also found in Niang beans. Furthermore, one particular amino acid, djenkolic acid was also present in these beans (ranging from 0.064 to 0.143 gm/100 gm Niang). These results illustrated that Niang beans gave high nutritive values.

It is well known among the natives that the beans contain, in the raw state, a toxin which causes djenkolism in persons who are sensitive to them. This toxin is supposed to be djenkolic acid which forms needle-shaped crystals and lacerates renal tissue. It has been shown in the present studies that djenkolic acid could be reduced to 30% after boiling in water, 5% NaHCO₃, or 5% HCl for 10 minutes. If they were boiled in 5% NaHCO₃ for 20 minutes, djenkolic acid could be reduced further down to 13%. It was therefore recommended that boiling Niang beans in these solvents for at

least 10 minutes could decrease their toxicity.

The toxicity of Niang beans in experiment animals i.e. monkeys, mice and albino rats were studied. In monkeys only decreasing in urinary output was observed. No needle shaped crystals were detected in the urine throughout the period of the studies. One mouse showed needle shaped crystals in the urine while the other mice demonstrated nothing remarkable. No significant changes were also observed in albino rats fed with Niang beans.

Histological examination demonstrated a cloudy swelling and hydropic degeneration with haemorrhage in renal tubules of mice and rats fed with Niang extract. Progressive necrosis of tubular cells was also observed in some mice.