

Nutritional value of fruit picked under ripe

Nutritional Quality of Leaves and Unripe Fruit Consumed as Famine Foods by the Flying Foxes of Samoa

Suzanne L. Nelson, Martin A. Miller, Edward J. Heske, and George C. Fahey Jr.

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Abstract: Many tropical herbivores alter their diets throughout the year in response to different levels of food availability. Fruit bats, including *Pteropus samoensis* Peale and *Pteropus tonganus* Quoy & Gaimard, are phytophagous species that may increase their consumption of foods such as unripe fruit and leaves in periods of low fruit diversity and volume. These periods include the tropical dry season or following the frequent hurricanes that batter the Samoan Archipelago. We examined the nutritional composition of leaves and immature fruits and compared the levels of organic and mineral nutrients with those of ripe fruit. We used principal components analysis (PCA) to examine patterns of variation in nutrient components of leaves, unripe fruit, and ripe fruit, as well as to compare the mean levels of nutrients. Overall, unripe fruit provided levels of nutrients comparable with those of ripe fruit of the same species for many organic and mineral components. Unripe fruit were only half as rich in iron as ripe fruit, but unripe fruit had high levels of calcium compared with ripe fruit of the same species. Leaves are often cited as a rich source of protein for fruit bats, and our results were consistent with this suggestion. Leaves were also found to be rich in zinc, manganese, and calcium. Therefore, flying foxes and other herbivores probably do not avoid unripe fruits and leaves because of their low nutrient levels. It may be that these famine foods are not normally consumed because of the presence of secondary compounds, low concentrations of palatable sugars, or a distasteful and hard pericarp on unripe fruits.