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“Solidarity in a competing world —  
fair use of resources”

## Indigenous Milk Hygiene and Preservation Techniques by Maasai Too Valuable to Lose

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### Abstract

The indigenous Parakuyo Maasai communities of Tanzania are traditional pastoralists who depend on fresh cow's milk as a staple food. However, the arid climate and a lack of clean water challenge milk production and conventional milk hygiene practices. Instead, the internal surfaces of empty, naturally occurring calabashes used for milk storage are smoke-treated by burning a variety of select local plant materials and this significantly prolongs milk keeping qualities, despite high temperatures. We sought to explore this sustainable and poorly understood innovation further by making enquiries throughout eight Parakuyo Maasai regions and 13 districts. By conducting informational interviews with 120 knowledgeable pastoralists, we sought to identify the key indigenous plants preferred and establish their traditional manner of use. A semi-structured questionnaire was designed to: (i) determine the plants used, (ii) the parts used, (iii) methods of preparation and utensil smoking, (iv) therapeutic applications and associated health benefits of these plants, and (v) alternative uses; that may suggest why they are used and preferred. Twenty plants were identified as being the most valuable, comprising predominantly hard wood trees and shrubs with strong aromas and astringent tastes suggestive of a role played by secondary metabolites. The most frequently mentioned plants, in order of preference, were: *Zanthoxylum chalybeum* (prickly ash; overall preference 26.6%), *Olea europaea* subsp. *africana* (African wild olive; 11.9%), *Combretum molle* (velvet bush willow; 11.4%), *Cordia ovalis/monoica* (satin saucer berry; 9.5%) and *C. sinensis* (oldoroko; 7.3%). Many of these plants are also used medicinally by these pastoralists for a variety of infectious diseases, suggesting possible antimicrobial properties. Plant choices also tended to vary by local geography and the purpose to which the calabashes were assigned, e.g. old or new calabashes and milk stored for children or mothers. Nevertheless, the expertise of selecting these plants and their innovative applications is transmitted solely by the oral tradition. Further, climatic change is adversely affecting herbaceous habitats in these regions and inter-tribal territorial strife and land-grabs necessitate that the pastoralists remain nomadic. Unless we document and attempt to understand this old indigenous and sustainable hygiene know-how, it may be too late.

**Keywords:** Maasai, milk hygiene, pastoralist, plants, smoke