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Upcycling of Mango Processing Waste to Support Circular Economy in East Africa

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Kenya is a leading producer of mangoes in Africa; however, it is estimated that 45-50% of mangoes grown in East Africa are lost between the point of harvest and the point of sale leading to food loss. Mango by-products (such as skin, seed kernel) make up about 39% of the mass of a mango. These by-products can be upcycled and processed into value added foods, nutraceuticals and cosmetic products. This research explores upcycled mango by-products, such as mangiferin (polyphenols), pectin, mango peel powder, mango kernel oil, kernel flour, and odor-active compounds. Mango peel powder, kernel oil, and kernel flour present the largest opportunities for mango processors in East Africa due to efficient utilization of existing food processing infrastructure, incorporating low-cost manufacturing processes, and potential marketability of upcycled products. By developing zero waste food processing systems we can reduce food loss, support circular economy and sustainability.