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Full Length Research Paper

Safety of horticultural and livestock products in two medium-sized cities of Mali and Burkina Faso

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Despite their contribution to food security, animal products and vegetables from urban and peri-urban agriculture (UPA) often raise public health and environmental concerns, given high use of agro-chemicals, organic fertilizers and wastewater. This study exemplarily investigated contamination of selected horticultural and livestock products (milk and irrigated lettuce with a potentially high microbiological contamination; and tomato and cabbage on which various pesticides were used) from Bobo Dioulasso (Burkina Faso) and Sikasso (Mali). Samples of irrigation water, organic fertilizer and lettuce were collected from six gardens; cabbage and tomato samples were collected from 15 gardens, and samples of raw and curdled milk were collected from six dairy herds in February, May, and November 2009. Thermo-tolerant coliforms and *Escherichia coli* in irrigation water significantly exceeded WHO recommendations for unrestricted irrigation of vegetables consumed raw. Microbial contamination of lettuce at garden level and market place in Bobo Dioulasso, and at garden level in Sikasso was higher than at Sikasso market (*P*<0.05). Pesticide residues were detected in only one cabbage and one tomato sample and were below the maximum residue limit for consumption. Counts of thermo-tolerant coliforms and *E. coli* were higher in curdled than in raw milk (*P*<0.05). Given the differences in microbial load between produce of different origin and subsequent stages along value chains, there is scope for low-cost improvement of the safety of UPA smallholders' products. However, studies of higher spatial and temporal resolution along all stages of the value chains for these products are needed in order to derive respective recommendations.

Key words: Bobo Dioulasso, *Escherichia coli,* milk, pesticide residues, thermo-tolerant coliforms, Sikasso, vegetables.

INTRODUCTION

The population of West African cities has grown at an annual rate of 5 to 7% over the past two decades, which has stimulated scientific interest in urban and peri-urban food production in this region (FAO, 2003). To satisfy the food demand of the urban population, there has been a shift from extensive to very intensive urban and peri-urban livestock and vegetable production systems that are heavily dependent on purchased feeds and intensive use of manure, irrigation water and pesticides. Despite their contribution to food security, household income, and

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