Cyanobacteria blooms–a possible cause of mass mortality of Lesser Flamingos in Lake Manyara and Lake Big Momela, Tanzania

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Abstract

ical studies were conducted in three alkaline lakes (Lake Big Momela, Manyara and Embagai) with the aim of investigating the cause of mass mortality of the Lesser Flamingos in Lake Manyara and Lake Big Momela during July–August 2004. High concentrations, up to 150 million filaments per liter of the potentially toxic planktonic cyanobacterium Arthrospira fusiformis were found in surface scum of Lake Big Momela where Lesser Flamingos were dying at a rate of between 15 and 50 individuals per day during the study period. Gut content analyses indicated that A. fusiformis was the main food item in moribund flamingos. Mouse bioassay suggested that the crude microalgal extract dominated by A. fusiformis was toxic with all mice close to death becoming lethargic, with loss of balance, uncoordinated movements, intermittent tremors, dyspnoea with gasping followed by respiratory arrest. This observation gives circumstantial evidence that A. fusiformis at such high concentrations was toxic to the Lesser Flamingo in Lake Big Momela.

Key Word Lesser Flamingos; Cyanobacteria; Lake Big Momela; Lake Manyara; Tanzania