



The Migratory Greater Flamingo of Iraqi Marshes Revealed by COI Gene Barcode

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ABSTRACT

The marshlands in the south and middle of Iraq are located along the migration route of immigrant birds. These marshes, characterized by warm weather and nutrition availability, provide an important habitat for these birds. The greater flamingo (*Phoenicopterus roseus*) (Aves: Phoenicopteridae) migrates between Eurasia and Africa. The flamingo population annually reaches the marshes of Iraq in winter. Due to morphological similarities between the Greater Flamingo *P. roseus* and another flamingo species, misidentification can occur. To identify the flamingo species and detect its migration route, the genetic barcode was used. The mitochondrial Cytochrome C Oxidase subunit I (COI) gene was amplified using universal primers. The amplification product was sequenced and analyzed as a DNA barcode. The sequence was checked on the Blast website of NCBI with the recorded the flamingo species from the surrounding area. Clustal Omega was utilized for sequence alignment. The study results confirmed that the population reaching the Iraqi marshes matches that of the European *P. roseus* population. The COI sequence of 673bp was deposited in the NCBI with the accession number of OM669759. The flamingo bird, which annually visits the Iraqi marshes, has been confirmed as *P. roseus*. The mitochondrial Cytochrome C Oxidase subunit I (COI) gene was proven as an efficient tool to discriminate among bird species. In addition, the Iraqi marshes are an important site for sustaining the migratory route of the greater flamingo and other aquatic birds.

INTRODUCTION

The greater flamingo *Phoenicopterus roseus* belongs to the family Phoenicopteridae. It is one of the immigrant wading birds (Al-Robaee, 2006; Habeeb *et al.*, 2018). The mesopotamian Iraqi marshes are located on the migration route in the winter season (Jawad *et al.*, 2021). At the same time, the nutrient availability and plant canopy in the Iraqi marshes would sustain a very rich diversity of living species of invertebrates and fish that support the immigrant birds (FAO, 2008; Habeeb *et al.*, 2019). Al-Robaee (2006) reported the breeding of some species of water birds in the Iraqi marshes, emphasizing their importance as a habitat for species conservation