



## ABSTRACT SUBMISSION

# Tracing Mobility in the Bronze Age Population of Varzaneh Plain, Iran, Using Strontium Isotope Analysis

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## Abstract

New archaeological discoveries in the Iranian Plateau dated to the second half of the 3rd to early 2nd millennium BCE present complexities that challenge traditional models of widespread regional settlement decline. The Varzaneh region, home to over two hundred archaeological sites, including approximately 30-25 from the Early Bronze Age (EBA) (mid-3rd millennium BCE), offers a distinctive lens to examine human occupation during this time. This study investigates patterns of mobility and resource exchange at Varzaneh Plain, situated in the lower and final course of the Z?yandeh-r?d river basin. We employed radiogenic strontium isotope ( $^{87}\text{Sr}/^{86}\text{Sr}$ ) analysis to the dental enamel of 42 individuals, supplemented by an  $^{87}\text{Sr}/^{86}\text{Sr}$  isoscape map based on 19 plant samples collected along east-west and north-south transects of the river basin. The baseline isotopic data reveal a broad range of  $^{87}\text{Sr}/^{86}\text{Sr}$  values with significant overlap across sampled regions. Enamel values align closely with local isotopic values, suggesting limited mobility, with only four individuals from site 051 showing isotopic signatures indicative of non-local origins. The findings underscore localized use of resources and offer nuanced insights into settlement stability and human adaptation in the Varzaneh Plain during the EBA, thereby advancing our understanding of population dynamics within this pivotal region.

## Keywords

Varzaneh Plain, Z?yandeh-r?d River, Early Bronze Age, Strontium Isotopes, Human Mobility

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