



Ancient DNA research confirms the West Eurasian genetic imprints in Pattanam

Hyderabad, 28th Apr, 2023: The archaeological site at Pattanam, on the South-western coast of the Indian subcontinent in the Ernakulam District of Kerala, is believed to be part of the ancient port city of the Muziris. Historians consider the city of Pattanam to have played an instrumental role in trade and cultural exchanges between India and the Middle East, North Africa and the Mediterranean regions. The belief stems from the classical Greco-Roman records as well as Tamil and Sanskrit sources. The recent and more conclusive archaeological evidences from Pattanam, and their ancient DNA analyses led by Dr Kumarasamy Thangaraj and Dr Dr. PJ Cherian strengthen the belief, and is now published in the journal, [Genes](#).

At the Pattanam Archaeological Site, scientists and archaeologists have found human bones, storage jars, a gold ornament, glass beads, stone beads, utilitarian objects made of stone, copper and iron, pottery, early Chera coins, brick wall, brick platform, ring well, wharf with bollards, and a six-meter-long wooden canoe parallel to the wharf structure about 2.5 m below surface level. “These structures indicate a vast 'urban' settlement. The excavations suggest that the site was first occupied by the indigenous "Megalithic" (Iron Age) people, followed by the Roman contact in the Early Historic Period. It appears that the site was continuously occupied at least from the 2nd century BC to the 10th century AD,” said Dr. PJ Cherian, from PAMA Institute for the Advancement of Transdisciplinary Archaeological Sciences, Ernakulam District of Kerala.



Figure: (Left) - Turquoise glazed pottery which belongs to West Asian and South Arabian ceramics, (Right) - Human skeletal remains dating back to first century BCE (specimen IDs REG.NO.336)

Scientists used the DNA from the human skeletons to pinpoint the genetic ancestry of the people found in the region. Dr Niraj Rai, co-corresponding author of the paper, and a Senior Scientist, DST-Birbal Sahni Institute of Palaeosciences, Lucknow said, “We have analysed the mitochondrial DNA of 12 ancient skeletal samples. We found that these samples show the presence of both South Asian and West Eurasian-specific lineages”.

The harsh climatic conditions of India are not always favourable to ancient DNA research. “Most of the excavated skeletal remains from the Pattanam site were in a very fragile state due to the tropical, humid, and acidic soil conditions. However, we have adopted the best practices in the field of ancient DNA and successfully analysed the samples. The unique imprint of West Eurasian and Mediterranean signatures found in these samples exemplify a continuous inflow of traders and multicultural mixing in ancient South India”, said Dr. Kumarasamy Thangaraj, Chief Scientist at CSIR-Centre for Cellular and Molecular Biology (CCMB) and currently the Director, DBT-Centre for DNA Fingerprinting and Diagnostics.

“This is the first genetic data generated, so far, to infer their origin and genetic makeup of Pattanam Archaeological Site. And the findings reinforce the early historical occupation of culturally, religiously, and ethnically diverse groups at the Pattanam Archaeological Site” said Dr. Vinay Kumar Nandicoori, Director, CCMB.

