Look inside! Synchrotron radiation X-ray microtomography of fossil fruits and seeds from Nakhon Ratchasima Province

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Abstract

Fossil fruits and seeds were collected from Khok Sung, Mueang District, and from Tha Chang, Chaloem Phra Kiat District, Nakhon Ratchasima Province. The Khok Sung specimens are middle Pleistocene, while the Tha Chang specimens may be Miocene up to Pleistocene, in age. Identification of the fossils will provide information about the systematics and evolution of the plant families and allow us to reconstruct past environments. However, some of the fruits and seeds are represented by single specimens, so it is inappropriate to section them. If they are new species, they would become types. Therefore, synchrotron radiation X-ray tomographic microscopy was performed at the Synchrotron Light Research Institute, Nakhon Ratchasima. A series of 2 dimensional x-ray images of the fruits and seeds were made and then 3 dimensional reconstructions were prepared showing inner structures and cell types. A total of 9 specimens were studied. These fossils are currently being compared with modern fruits and seeds to determine their affinities.

Keywords
Fossil fruits, seeds, Nakhon Ratchasima, synchrotron, X-ray tomographic microscopy