

Crinoids are invertebrates that are also known as sea lilies or feather stars. They belong to echinoderms (Echinodermata). The geological history of echinoderms dates back to the Early Ordovician (Paleozoic era, about 485 million years ago). The echinoderms are unusual organisms that can range in size from a few millimeters to about 20 meters in some fossil forms. Crinoids are stenohaline organisms, and hence, are excellent indicators of environmental conditions, of which they inhabit. Additionally, they are also a robust tool for dating the age of sediments. In the absence of any other index fossils, the free-living crinoids have proved to be a valuable age-diagnostic tool.

The Jurassic and Cretaceous crinoids of the northern margin of the Tethys Ocean (including Spain, France, Switzerland, Austria, Italy, Germany, Poland, Czech Republic, Hungary, Ukraine, Russia and its former republics, Turkey and Iran) have been intensively studied for their taxonomy and evolutionary history, and have been extensively used as a tool for inferring their palaeoecology and palaeobiogeography. However, in contrast to this, data from the southern margin of the Tethys is mostly missing, and the crinoidal fauna remains largely undescribed and unstudied, as reflected by scarce published records. Therefore, it is difficult to speculate whether the forms already known from the northern margin will also be present on the southern side, or may well be represented by some other group(s). Preliminary observations show that the Late Jurassic (Kimmeridgian) and Late Cretaceous (Cenomanian) free-living crinoids are identical to very similar in Europe and Africa. It is most likely that, further south (Madagascar and India), there will be greater abundance and species diversity of crinoids.

The aim of the present project is to determine the taxonomic composition of the Jurassic and Cretaceous crinoids in northern and eastern Africa (Morocco, Algeria, Egypt, Ethiopia, Kenya and Madagascar) and Asia (Saudi Arabia, India and Jordan). Biostratigraphically, few sections (e.g., Morocco, Algeria, Jordan, Egypt) are well-documented by age diagnostic ammonites. Strong emphasis will be placed on the (1) palaeobiogeographic comparison of crinoidal faunas from the both Tethyan margins, (2) paleoecological observations, and (3) evolutionary dynamics of various ecological groups of crinoids. Among other things, the influence of biotic and abiotic factors on crinoidal taxonomic diversity and assemblage composition will also be thoroughly investigated and analysed.