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Species description of fossil spiders supported by non-destructive high-resolution X-ray CT

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Fossil spiders preserved in amber (fossilised tree resin) or copal (a generic term used for organic resins that are not old enough to have sufficiently polymerized to become amber) represent only a small fraction of the biota which was alive in fossil forest environments. Although spiders were among the earliest animals to live on land, their fossil record is relatively poor. Therefore, when analysing a spider imbedded in amber or copal, first experiments should be performed in a non-destructive way. A multi-purpose open type X-ray micro-CT set-up of the UGCT group of the Ghent University was used to scan the fossil spiders Gallieniella sp. and Mizalia sp. imbedded respectively in copal from Madagascar and Baltic amber. The X-ray micro-CT consisted of a dual head Feinfocus® tube as an X-ray source and a Rad-Eye® CMOS flat panel (1024 x 512 pixels, pixel size 50 μm) as detector. The in-house developed software pacakage (Octopus) was used for tomographic reconstruction, while VGStudio was used to render the 3D-volumes. The resulting 3D volumes of both fossil spiders assisted in the characterization of the species.