# Za a iya amfani da dabarar X-ray maras gani don taswirar ƙananan gaɓoɓin ƙwari

ST Communications

## Bayanan X-ray micro-tomographic na rayayyun tsutsotsi na ƙwaron Cacosceles newmannii

### Abstract

Ƙididdige tsarin numfashi na ƙwari da bambance-bambancensu ya kasance ƙalubale saboda ƙanƙantarsu.

A nan muna auna yawan maƙogoron ƙwaro ta amfani da ɗaukar hoton X-ray micro-tomography (µCT) (a haske 15 µm) a kan rayayyun tsutsotsin ƙwaron cerambycid Cacosceles newmannii masu girman jiki mabambanta waɗanda aka yi allurar barci.

A cikin wannan takarda mun samar da cikakkun bayanai na bayanan samfur da samfurin 3D don ɗaukar hotuna 12, samar da sabon bayani game da maimaitawa na nazarin hoto da bambance-bambancen halayen maƙogoro da aka samar ta hanyoyi daban-daban na rarraba hoto.

Ana bayar da bayanan ƙarar a nan tare da sassan maƙogoro da aka raba a zaman ƙirar 3D.

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## Za a iya amfani da dabarar X-ray maras gani don taswirar ƙananan gaɓoɓin ƙwari

Masana kimiyyar sun kalli tsarin numfashin ƙwari daki-daki ta hanyar amfani da fasahar ɗaukar hoto mai suna X-ray micro-tomography.

Masanan kimiyyar sun yi amfani da dabarar a kan ƙwari masu rai, don fahimtar yadda ƙananan sassan jikinsu suke sauyawa da girma cikin lokaci.

A yawancin bincike, masana kimiyya suna bincika bututun numfashi, ko maƙogoro na matattun ƙwari.

Abin baƙin ciki, waɗannan siffofi suna sauyawaa bayan mutuwa, suna cika da ruwa, ko ma rushewa.

Wannan yana nufin masana kimiyya sun rasa mahimman bayanai a kan yadda waɗannan siffofi sukan bunƙasa yayin da halittun suke girma.

Don wannan binciken, saboda haka, masu binciken sun so ɗaukar hotunan ƙwari masu rai a matakai daban-daban na girma.

Musamman, sun so su ga ko za su iya samun nasarar auna girman da yawan tsarin maƙogoro a cikin tsutsar ƙwaron ta amfani da micro-tomography na X-ray.

Sun tattara tsutsar ƙwari masu dogayen ƙaho Cacosceles newmannii daga shukar rake a KwaZulu-Natal, Afirka ta Kudu.

An ajiye tsutsotsin a raye a cikin ɗakin gwaje-gwaje sannan kuma an yi musu allurar barci don a duba su.

Ta yin amfani da micro-tomography na X-ray, masu binciken sun sami damar duba tsarin maƙogoro ba tare da cutar da ƙwari a cikin tsarin ba.

Masu binciken sun yi amfani da na'urar ɗaukar hoto don taswirar tsarin numfashi, da kuma sake yin su a cikin tsarin 3D a kan kwamfuta.

Har ila yau, sun nuna cewa za a iya yin amfani da ƙwari da kuma bincikar su ba tare da shafar rayuwarsu ko ci gaban su ba, wani abu da ya kasance ƙalubale a binciken da aka yi a baya.

Wannan wani muhimmin ci gaba ne, tun da a yanzu sauran masu bincike za su iya yin amfani da wannan hanyar don duba da kuma tsara sassan jikin ƙwari masu rai, ta yadda za su iya yin nazarin yadda ƙwari suke tasowa da girma da kuma rayuwa a cikin yanayi daban-daban.

Abin takaici, masu binciken sun iya yin taswirar maƙogoro a kan girman 15 micrometers kawai (15 µm).

Duk da yake wannan ƙanƙani ne a cikin al'amurran yau da kullun, maƙogoron ƙwaro na iya zama ƙarami kamar 1 µm, ma'ana cewa ko da wannan hanyar na iya rasa wasu mahimman bayanai.

Girman tsutsa masu rai kuma yana nufin cewa masu binciken sun kasa ɗaukar hotonsu a cikin mafi kyawun haske.

Masu binciken sun lura duk da haka cewa girman 15 µm na iya isa don samun mafi yawan daki-daki a cikin manyan ƙwari, kuma binciken nan gaba yakamata ya bincika yadda ake inganta haske.

Cacosceles newmannii wani nau'in ƙwaro ne na asali a wasu lokuta ana samun su a cikin gonakin rake a cikin KwaZulu-Natal, da yiwuwar fesa maganin ƙwari na waɗannan amfanin gona masu mahimmancin tattalin arziki.

Fahimtar nazarin halittun ƙwaro na iya ba da alamun da ake buƙata don sarrafa tsutsa a cikin amfanin gonakin rake.

Binciken ya kasance na haɗin gwiwa tsakanin masana kimiyya daga Afirka ta Kudu da kuma Sweden.