

Molecular characterization of novel viral species of the families *Closteroviridae* and *Secoviridae* infecting yams

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Three new *Potexvirus* species infecting yams were identified by RT-PCR performed on total nucleic acids (TNAs) prepared from yams of the Guadeloupe Centre for Biological Resources (CRB PT) germplasm collection [1], using degenerate primers potex2 and potex5 [2] which target the RdRp domain of potexviruses ORF1. However, two different amplification products were obtained with some samples. One product had a size smaller than expected. Its sequence is closely related to those of sadwaviruses RNA1 and clearly belongs to a yet undescribed viral species. Additional data resulting from yam ESTs datamining point the existence of a sadwavirus species infecting yams. Primers specific for the RNA1 and RNA2 of this novel virus species were designed based on the PCR fragment and on yam ESTs, respectively, and used in RACE experiments. Additional nucleotide sequences corresponding to the same agent were gathered from deep sequencing reads performed on yam accessions from CRB PT's germplasm collection, leading to the assembly of the complete genome of a novel sadwavirus, for which the name Yam necrosis virus (YNV) is proposed.

Yam ESTs datamining also retrieved sequences of viruses of the family *Closteroviridae*. Complete genomes of two distinct viral species were assembled from 454 and Illumina deep sequencing reads obtained on yam accessions from CRB PT's germplasm collection: a novel member of the Ampelovirus genus, for which the name Yam ampelovirus 1 (YAV-1) is proposed, and Cordyline virus 1 (CoV-1), a member of the tentative genus *Velarivirus* previously reported in Hawaiï on *Cordyline fruticosa*, an evergreen flowering plant in the *Asparagus* family [3].

Specific primers to YNV and YAV-1 were designed and used, together with published CoV-1 specific primers [3], to assess the prevalence of these three viruses in CRB PT's germplasm collection providing insight into the diversity and epidemiology of these viruses.

Mots-clés : Yams, *Closteroviridae*, *Ampelovirus*, *Velarivirus*, *Cordyline virus 1*, diversity, prevalence.

Références :

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