

SHORT NOTE

First report of a tomato leaf curl virus (genus *Begomovirus*) on *Corchorus olitorius* in Togo

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Vegetables play a major role in the livelihood- of the poor rural Africans. Among major constraints to vegetable production worldwide, are diseases caused by a group of viruses belonging to the genus *Begomovirus*, family of *Geminiviridae*. Begomoviruses are plant-infecting viruses, which are transmitted by the whitefly vector *Bemisia tabaci* and have been known to cause extreme yield reduction in a number of economically important vegetables around the world (Leke *et al.*, 2015). Vegetable, *Corchorus olitorius* L., commonly known as wild okra, belongs to the family of *Malvaceae* (APG classification) former *Tiliaceae* (Barbara *et al.*, 2003). It is cultivated for fiber production, and as a food plant (leaves). *Corchorus olitorius* seemed resistant to diseases and pests, but another species of the genus, *Corchorus capsularis* is sensitive to begomoviruses which emerge as a serious biotic constraint for jute fiber production in Asia (Ha *et al.*, 2006; Ghosh *et al.*, 2012).

In 2015-2016, foliar samples of *Corchorus olitorius* were collected from cassava based cropping system fields in Plateau and Maritime regions of Togo as part of begomoviruses emerging in cassava based cropping systems study. Eleven samples were tested and one is found to be positive for the presence of begomoviruses by PCR, using degenerate primers AC1048/AV494 (Wyatt and Brown, 1996). PCR product was sequenced using Miseq V2 Reagent Kit (Illumina Inc., San Diego, CA, USA). One of the sequences (G90a) shared the highest nucleotide identity (89%) with two isolates of Tomato leaf curl viruses: *Tomato leaf curl Nigeria virus*-[Nigeria:2006] (FJ685621.1) and *Tomato leaf curl Kumasi virus*-LIONGO1 (FM210062.1).

This is the first report of tomato leaf curl virus on *Corchorus olitorius* in Togo. These results show that *Corchorus*

olitorius is host and reservoir of tomato leaf curl viruses, and suggest that the strain identified can be a recombinant.

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References

- Ghosh R., Palit P., Paul S., Ghosh S.K., Roy A. 2012. Detection of *Corchorus* golden mosaic virus Associated with Yellow Mosaic Disease of Jute (*Corchorus capsularis*). *Indian Journal of Virology*, 23 (1):70–74
- Ha, C., S., Coombs, P., Revill, R., Harding, M., Vu and J., Dale, 2006. *Corchorus* yellow vein virus, a New World geminivirus from the Old World. *Journal of General Virology*, 87, 997–1003. DOI: 10.1099/vir.0.81631-0; PMID: 16528050;
- Leke W.N., Mignouna D.B., Brown J.K., Kvarnheden A., 2015. Review: Begomovirus disease complex: emerging threat to vegetable production systems of West and Central Africa. *Agriculture & Food Security*, 4:1.
- Barbara AW, Kenneth GK and William SA (2003) Chloroplast DNA sequences confirm the placement of the enigmatic *Oceanopapaver* within *Corchorus* (Grewioideae: Malvaceae S.L., formerly Tiliaceae). *Int. J. Plant Sci.* 164 : 35-41.
- Wyatt, S.D., and J.K., Brown, 1996. Detection of subgroup III Geminivirus isolates in leaf extracts by degenerate primers and Polymerase Chain Reaction. *Phytopathology* Vol. 86, No. 12, 1996 pp 1288-1293. DOI: 10.1094/Phyto-86-1288