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DISEASE NOTE

First report of coleus blumei viroid 1 in *Plectranthus scutellaroides* in Australia

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Plectranthus scutellaroides (syn. *Coleus blumei*), commonly known as coleus, is a colourful garden plant with many varieties of leaf colour available. Coleus plants are susceptible to infection from several viroids, mostly asymptomatic in nature. In March 2020, an asymptomatic coleus cv. Campfire sample (CP32) obtained from a residence in New South Wales, Australia was screened for coleus blumei viroid 1 (CBVd-1), CBVd-5 and CBVd-6. An RT-PCR assay, using overlapping P1 and P2 universal primers that detect the above three viroids (Jiang et al. 2011), produced an amplicon that was sequenced bi-directionally. The consensus sequence (GenBank accession No. PP356656) revealed there was a 99.6% identity to CBVd-1 from India (AB740017). Additional samples ($n = 20$) were screened from asymptomatic coleus plants germinated from purchased seed and from nurseries and private residences. CBVd-1 was detected in six samples using the above primers (Jiang et al. 2011). Further analysis using shotgun transcriptomics of CP32 and another sample (CP33), confirmed both were positive for CBVd-1 and no other viruses or viroids were present. High throughput Illumina sequencing was performed using conditions and analysis as previously described (Donovan et al. 2023) with the inclusion of the BBnorm tool (target = 100, coverage = 5) (Bushnell 2017). CBVd-1 presence was confirmed in both samples following analysis of resulting contigs using a local NCBI ref_viruses_rep_genomes BLAST database (Downloaded 15/12/2023). Viroid contigs, consisting of a monomeric genome and a partial direct repeat of it, were identified from CP32 (322 nucleotides, 63× coverage) and CP33 (322 nucleotides, 44× coverage). Both had 98% similarity to CBVd-1 (NC_003681) from the database. CBVd-1 is the predominant species in the genus *Coleviroid* which has been reported worldwide (Jiang et al. 2011). To our knowledge, this is the first record of CBVd-1 in Australia. Further surveys would be required to confirm that this is the only coleus-infecting viroid present in Australia.

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Data availability Representative sequence data was deposited in NCBI and is publicly available. The datasets generated during and/or analysed during the current study are available from the corresponding author on reasonable request.

Declarations

Ethical statement The authors confirm that there are no ethical issues in the publication of this research, it does not involve human participants or animals.

Competing interests The authors have no conflicts of interest to declare that are relevant to this article.

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