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**Part 1:** **TITLE, AUTHORS, APPROVALS, etc**

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| **Code assigned:** | **2020.001F** |  |
| **Short title:** Create two new genera (*Rhizoulivirus* and *Penoulivirus*) and 25 new species (*Ourlivirales*: *Botourmiaviridae*) | | |
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**List the ICTV Study Group(s) that have seen this proposal**

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| *Partitiviridae* Study Group |

**ICTV study group comments and response of proposer**

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**Authority to use the name of a living person**

|  |  |  |
| --- | --- | --- |
| **Taxon name** | **Person from whom the name is derived** | **Permission attached (Y/N)** |
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**Submission dates**

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| Date first submitted to SC Chair | August 10, 2020 |
| Date of this revision (if different to above) | N/A |

**ICTV-EC comments and response of the proposer**

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**Part 3:** **TAXONOMIC PROPOSAL**

**Name of accompanying Excel module**

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| 2020.001F.R.Botourmiaviridae |

**Abstract**

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| Family *Botourmiaviridae* currently includes four genera, *Ourmiavirus, Botoulivirus, Magoulivirus* and *Scleroulivirus*, each one including two or three species. We searched the NCBI database and found that more viruses can be classified into the family (Table 1), some of them can be classified in the recognized genera but other are distinct and require establishing two new genera.  Here, we propose the creation of two new genera in order to classify several new species. |

**Text of proposal**

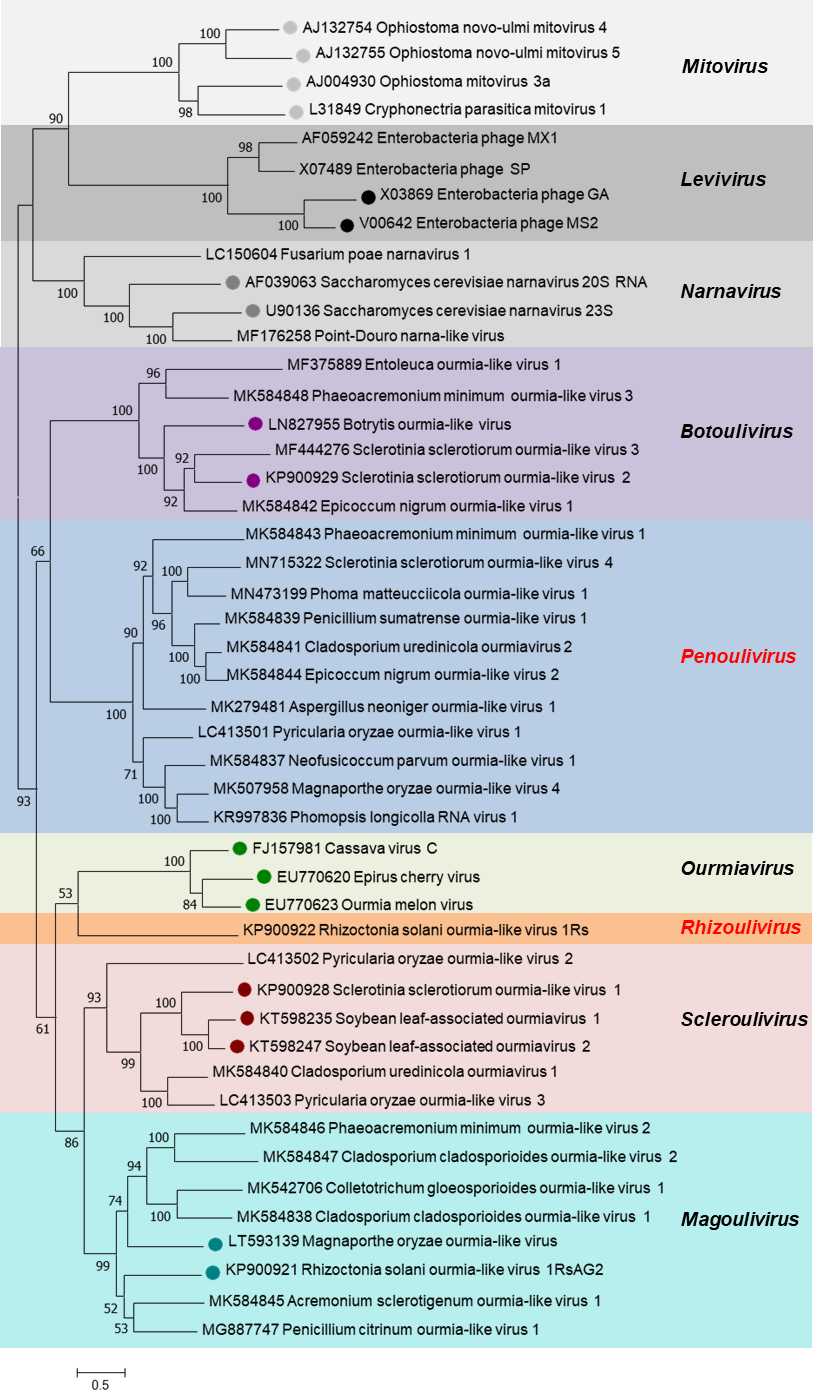
|  |  |
| --- | --- |
| |  | | --- | | **1. Recognized genus *Ourmiavirus***  Currently, three species, *Ourmia melon virus*, *Epirus cherry virus* and *Cassava virus C* are recognized.  **2. Recognized genus *Botoulivirus***  Presently, two species are recognized, *Botrytis botoulivirus* and *Sclerotinia botoulivirus 2*.  We propose to create four new species: *Entoleuca botoulivirus*, *Phaeoacremonium botoulivirus, Sclerotinia botoulivirus 3*, *Epicoccum* b*otoulivirus* in order to classify several novel viruses (see Table 1).  **3.** **Recognized genus *Magoulivirus***  Currently, two species are recognized in this genus, *Magnaporthe magoulivirus 1* and *Rhizoctonia magoulivirus 1*.  We propose to create six new species in this genus: *Phaeoacremonium magoulivirus*, *Acremonium magoulivirus*, *Colletotrichum magoulivirus*, *Cladosporium magoulivirus 1*, *Cladosporium magoulivirus 2*, *Penicillium magoulivirus* in order to classify several new viruses (see Table 1).  **4.** **Recognized genus *Scleroulivirus***  At present, three species are recognized in this genus, *Sclerotinia scleroulivirus 1*, *Soybean scleroulivirus 1* and *Soybean scleroulivirus 2*.  We propose to include inside this genus three new species: *Pyricularia scleroulivirus 2*, *Cladosporium scleroulivirus*, and *Pyricularia scleroulivirus 3* in order to classify several new viruses (see Table 1).  **5. Proposed genus *Rhizoulivirus***  A unique specie is proposed, to be included in this new genus, named *Rhizoctonia rhizoulivirus*, that will be the type species.  **6. Proposed genus *Penoulivirus***  This proposed genus will include eleven new species, namely *Phaeoacremonium penoulivirus*, *Sclerotinia penoulivirus*, *Phoma penoulivirus*, *Cladosporium penoulivirus*, *Epicoccum penoulivirus*, *Aspergillus penoulivirus*, *Pyricularia penoulivirus*, *Neofusicoccum* *penoulivirus*, *Magnaporthe penoulivirus*, *Phomosis penoulivirus* in order to classify a number of new viruses (Table 1). *Penicillium penoulivirus* is proposed as type species. | |

**Supporting evidence**

All names and GenBank accession number are listed in Table 1. The phylogenetic analysis is shown in Figure 1.

**Table 1** Composition of the expanded and reorganized family *Botourmiaviridae*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Genus name** | **New species ~~name~~** | **Former species name** | **Virus name/Acronym** | **Accession number (N/P)** | **Host** | **Reference** |
| *Ourmiavirus* |  | *Ourmia melon virus* | Ourmia melon virus/ OuMV | EU770623/ ACF16360 | Plant, melon | Rastgou et al. 2009 |
|  | *Epirus cherry virus* | Epirus cherry virus/ EpCV | EU770620/ACF16357 | Plant, cherry | Rastgou et al. 2009 |
|  | *Cassava virus C* | Cassava virus C/ CVC | FJ157981/ ACI03053 | Plant, Manihot esculenta | Rastgou et al. 2009 |
| *Botoulivirus* |  | *Botrytis botoulivirus* | Botrytis ourmia-like virus/ BOLV | LN827955/ CEZ26310 | Fungi, Botrytis species | Donaire et al. 2016 |
|  | *Sclerotinia botoulivirus 2* | Sclerotinia sclerotiorum ourmia-like virus 2/ SsOLV2 | KP900929/ ALD89139 | Fungi, *Sclerotinia sclerotiorum* | Marzano et al. 2016 |
| Sclerotinia botoulivirus 3 |  | Sclerotinia sclerotiorum ourmia-like virus 3/ SsOLV3 | MF444276/ AWY11006 | Fungi, *Sclerotinia sclerotiorum* | Marzano et al. 2016 |
| *Epicoccum botoulivirus* |  | Epicoccum nigrum ourmia-like virus 1/ EnOLV1 | MK584842/ QDB75003 | Fungi, *Epicoccum nigrum* | Nerva et al. 2019a |
| *Entoleuca botoulivirus* |  | Entoleuca ourmia-like virus 1/ EnOLV1 | MF375889/ AVD68674 | Fungi, *Entoleuca sp.* | Velasco et al. 2019 |
| *Phaeoacremonium botoulivirus* |  | Phaeoacremonium minimum ourmia-like virus 3/ PmOLV3 | MK584848/ QDB75009 | Fungi, *Phaeoacremonium minimum* | Nerva et al. 2019a |
| *Magoulivirus* |  | *Magnaporthe magoulivirus 1* | Magnaporthe oryzae ourmia-like virus/ MOLV1 | LT593139/ SBQ28480 | Fungi, *Magnaporthe oryzae* | Illana et al. 2017 |
|  | *Rhizoctonia magoulivirus 1* | Rhizoctonia solani ourmia-like virus 1RsAG2/ RsOLV1 | KP900921/ ALD89131 | Fungi, *Rhizoctonia solani* | Marzano et al. 2016 |
| *Phaeoacremonium magoulivirus* |  | Phaeoacremonium minimum ourmia-like virus 2/ PmOLV2 | MK584846/ QDB75007 | Fungi, *Phaeoacremonium minimum* | Nerva et al. 2019a |
| *Acremonium magoulivirus* |  | Acremonium sclerotigenum ourmia-like virus 1/ AsOLV1 | MK584845/ QDB75006 | Fungi, *Acremonium sclerotigenum* | Nerva et al. 2019a |
| *Colletotrichum magoulivirus* |  | Colletotrichum gloeosporioides ourmia-like virus 1/ CgOLV1 | MK542706/ QDW80875 | Fungi, *Colletotrichum gloeosporioides* | Guo et al. 2019 |
| *Cladosporium magoulivirus 1* |  | Cladosporium cladosporioides ourmia-like virus 1/ CcOLV1 | MK584838/ QDB74999 | Fungi, *Cladosporium cladosporioides* | Nerva et al. 2019a |
| *Cladosporium magoulivirus 2* |  | Cladosporium cladosporioides ourmia-like virus 2/ CcOLV2 | MK584847/ QDB75008 | Fungi, *Cladosporium cladosporioides* | Nerva et al. 2019a |
| *Penicillium magoulivirus* |  | Penicillium citrinum ourmia-like virus 1/ PcOLV1 | MG887747/ AYP71797 | Fungi, *Penicillium citrinum* | Nerva et al. 2019b |
| *Scleroulivirus* |  | *Sclerotinia scleroulivirus 1* | Sclerotinia sclerotiorum ourmia-like virus 1/ SsOLV1 | KP900928/ ALD89138 | Fungi, Sclerotinia sclerotiorum | Marzano et al. 2016 |
|  | *Soybean scleroulivirus 1* | soybean leaf-associated ourmiavirus 1/ SlaOLV1 | KT598235/ ALM62238 | Fungi, soybean leaf | Marzano and Domier, 2016 |
|  | *Soybean scleroulivirus 2* | soybean leaf-associated ourmiavirus 2/ SlaOLV2 | KT598247/ ALM62250 | Fungi, soybean leaf | Marzano and Domier, 2016 |
| *Pyricularia scleroulivirus 2* |  | Pyricularia oryzae ourmia-like virus 2/ PoOLV2 | LC413502/ BBF90577 | Fungi, *Pyricularia oryzae* | Ohkita et al. 2019 |
| *Cladosporium scleroulivirus* |  | Cladosporium uredinicola ourmia-like virus 1/ CuOLV1 | MK584840/ QDB75001 | Fungi, *Cladosporium uredinicola* | Nerva et al. 2019a |
| *Pyricularia scleroulivirus 3* |  | Pyricularia oryzae ourmia-like virus 3/ PoOLV3 | LC413503/ BBF90578 | Fungi, *Pyricularia oryzae* | Ohkita et al. 2019 |
| *Penoulivirus* | *Phaeoacremonium penoulivirus* |  | Phaeoacremonium minimum ourmia-like virus 1/ PmOLV1 | MK584843/ QDB75004 | Fungi, *Phaeoacremonium minimum* | Nerva et al. 2019a |
| *Sclerotinia penoulivirus* |  | Sclerotinia sclerotiorum ourmia-like virus 4/ SsOLV4 | MN715322/ QHG11400 | Fungi, *Sclerotinia sclerotiorum* | Wang et al. 2020 |
| *Phoma penoulivirus* |  | Phoma matteucciicola ourmia-like virus 1/ PmOLV1 | MN473199/ QIP68359 | Fungi, *Phoma matteucciicola* | Zhou et al. 2020 |
| *Cladosporium penoulivirus* |  | Cladosporium uredinicola ourmia-like virus 2/ CuOLV2 | MK584841/ QDB75002 | Fungi, *Cladosporium uredinicola* | Nerva et al. 2019a |
| *Epicoccum penoulivirus* |  | Epicoccum nigrum ourmia-like virus 2 / EnOLV2 | MK584844/ QDB75005 | Fungi, *Epicoccum nigrum* | Nerva et al. 2019a |
| *Aspergillus penoulivirus* |  | Aspergillus niger ourmia-like virus 1/ AnOlV1 | MK279481/ AZT88620 | Fungi, *Aspergillus neoniger* | Gilbert et al. 2019 |
| *Pyricularia penoulivirus* |  | Pyricularia oryzae ourmia-like virus 1/ PoOLV1 | LC413501/ BBF90576 | Fungi, *Pyricularia oryzae* | Ohkita et al. 2019 |
| *Neofusicoccum penoulivirus* |  | Neofusicoccum parvum ourmia-like virus 1/ NpOLV1 | MK584837/ QDB74998 | Fungi, *Neofusicoccum parvum* | Nerva et al. 2019a |
| *Magnaporthe penoulivirus* |  | Magnaporthe oryzae ourmia-like virus 4/ MOLV4 | MK507958/ QDW80874 | Fungi, *Magnaporthe oryzae* | Li et al. 2019 |
| *Phomosis penoulivirus* |  | Phomopsis longicolla RNA virus 1/ PlRV1 | KR997836/ AMB21743 | Fungi, *Phomopsis longicolla* | Hrabakova et al. 2017 |
| *Penicillium penoulivirus* |  | Penicillium sumatrense ourmia-like virus 1/ PsOLV1 | MK584839/ QDB75000 | Fungi, *Penicillium sumatrense* | Nerva et al. 2019a |
| *Rhizoulivirus* | *Rhizoctonia rhizoulivirus* |  | Rhizoctonia solani ourmia-like virus 1Rs/ RsOLV1 | KP900922/ ALD89132 | Fungi, *Rhizoctonia solani* | Marzano et al. 2016 |

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**Figure 1** Phylogenetic tree of the expanded and reorganized family *Botourmiaviridae*. A maximum likelihood phylogenetic tree was constructed based on the multiple amino acid sequence alignment of the RNA-directed RNA polymerase (RdRp) using IQ-TREE (version 1.6.11) (Nguyen et al. 2015; Trifinopoulos et al. 2016) with the best-fit model “VT+F+I+G4” and 1,000 replicates ultrafast bootstrap (Minh et al. 2013). Viruses classified in genera *Mitovirus*, *Narnavirus* and *Levivirus* were used as outgroups. Trifinopoulos J, von Haeseler A, Minh BQ. W-IQ-TREE: a fast online phylogenetic tool for maximum-likelihood analysis. Nucleic Acid Research, 2016; 44:W232-W235. Nguyen L.-T., Schmidt H.A., von Haeseler A., and Minh B.Q. (2015) IQ-TREE: A fast and effective stochastic algorithm for estimating maximum likelihood phylogenies. Mol. Biol. Evol., 32:268-274. Minh B.Q., Nguyen M.A.T., and von Haeseler A. (2013) Ultrafast approximation for phylogenetic bootstrap. Mol. Biol. Evol. 30:1188-1195.

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# [Marzano SY](https://www.ncbi.nlm.nih.gov/pubmed/?term=Marzano%20SY%5BAuthor%5D&cauthor=true&cauthor_uid=27194764), [Nelson BD](https://www.ncbi.nlm.nih.gov/pubmed/?term=Nelson%20BD%5BAuthor%5D&cauthor=true&cauthor_uid=27194764), [Ajayi-Oyetunde O](https://www.ncbi.nlm.nih.gov/pubmed/?term=Ajayi-Oyetunde%20O%5BAuthor%5D&cauthor=true&cauthor_uid=27194764), [Bradley CA](https://www.ncbi.nlm.nih.gov/pubmed/?term=Bradley%20CA%5BAuthor%5D&cauthor=true&cauthor_uid=27194764), [Hughes TJ](https://www.ncbi.nlm.nih.gov/pubmed/?term=Hughes%20TJ%5BAuthor%5D&cauthor=true&cauthor_uid=27194764), [Hartman GL](https://www.ncbi.nlm.nih.gov/pubmed/?term=Hartman%20GL%5BAuthor%5D&cauthor=true&cauthor_uid=27194764), [Eastburn DM](https://www.ncbi.nlm.nih.gov/pubmed/?term=Eastburn%20DM%5BAuthor%5D&cauthor=true&cauthor_uid=27194764), [Domier LL](https://www.ncbi.nlm.nih.gov/pubmed/?term=Domier%20LL%5BAuthor%5D&cauthor=true&cauthor_uid=27194764). Identification of Diverse Mycoviruses through Metatranscriptomics Characterization of the Viromes of Five Major Fungal Plant Pathogens. Journal of Virology 2016; 90, 6846-6863. PMID: 27194764 DOI: 10.1128/JVI.00357-16

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