

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

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| **Code assigned:** | **2022.003F** |  |
| **Short title:** Create 15 new species in the family *Botourmiaviridae* | | |
|  | | |

**Author(s) and email address(es)**

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**List the ICTV Study Group(s) that have seen this proposal**

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| ICTV Fungal and Protist Viruses Subcommittee Chair; ICTV *Botourmiaviridae* Study Group. |

**ICTV Study Group comments and response of proposer**

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**ICTV Study Group votes on proposal**

|  |  |  |  |
| --- | --- | --- | --- |
| **Study Group** | **Number of members** | | |
| **Votes support** | **Votes against** | **No vote** |
| SG *Botourmiaviridae* | 7 | 0 | 0 |
|  |  |  |  |

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

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| --- | --- |
| **Is any taxon name used here derived from that of a living person (Y/N)** |  |

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

|  |  |
| --- | --- |
| Date first submitted to SC Chair | 22/05/2022 |
| Date of this revision (if different to above) |  |

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

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

**Name of accompanying Excel module**

|  |
| --- |
| 2022.003F.N.v1.Botourmiaviridae\_15nsp.xlsx |

**Abstract**

|  |
| --- |
| The family *Botourmiaviridae* currently includes twelve genera: *Ourmiavirus*, *Botoulivirus*, *Betabotoulivirus*, *Magoulivirus*, *Scleroulivirus*, *Betascleroulivirus*, *Deltascleroulivirus*, *Gammascleroulivirus*, *Epsilonscleorulivirus*, *Rhizoulivirus*, *Betharhizoulivirus*,and *Penoulivirus.* We searched the NCBI database and found that additional viruses can be classified in the currently recognized genera in the family.  Here we propose the creation of fifteen new species in the following seven genera: *Botoulivirus* (3 species), *Magoulivirus* (5), *Scleroulivirus* (2), *Gammascleroulivirus* (1), *Epsilonscleorulivirus* (1), *Betharhizoulivirus* (1),and *Penoulivirus* (2). |

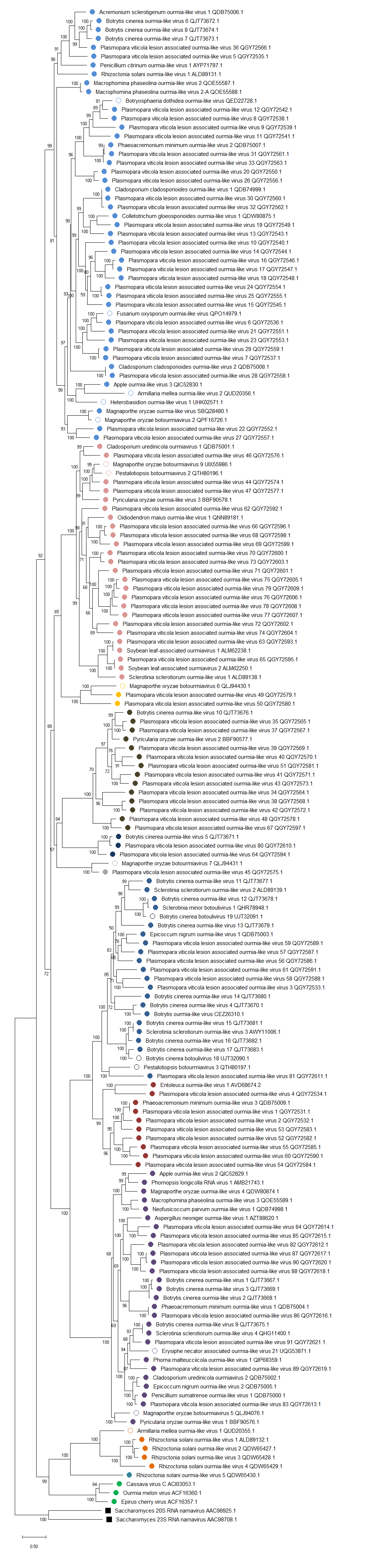
**Text of proposal**

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| --- | --- |
| |  | | --- | | The family *Botourmiaviridae* currently includes twelve genera: *Ourmiavirus*, *Botoulivirus*, *Betabotoulivirus*, *Magoulivirus*, *Scleroulivirus*, *Betascleroulivirus*, *Deltascleroulivirus*, *Gammascleroulivirus*, *Epsilonscleorulivirus*, *Rhizoulivirus*, *Betharhizoulivirus*,and *Penoulivirus.* We searched the NCBI database and found that additional viruses can be classified in the family.  Accordingly, here we propose the creation of fifteen new species in several genera of the family (Table 1). The phylogenetic analysis and alignment of selected viruses are shown in Figures 1 and 2.  **Genus *Botoulivirus***  We propose to create three new species in this genus: *Botoulivirus iotabotrytidis*, *Botoulivirus kappabotrytidis*, and *Botoulivirus alphapestalotiopsis*.  **Genus *Magoulivirus***  We propose to create five new species in this genus: *Magoulivirus alphaoryzae*, *Magoulivirus alphaoxyspori*, *Magoulivirus alphamellea*, *Magoulivirus alphaheterobasidion*, and *Magoulivirus alphaodothidea*.  **Genus *Scleroulivirus***  We propose to create two new species in this genus: *Scleroulivirus alphapestalotiopsis* and *Scleroulivirus alphaoryzae*.  **Genus *Gammascleroulivirus***  We propose to create a single new species: *Gammascleroulivirus alphaoryzae.*  **Genus *Epsilonscleroulivirus***  We propose to create a single new species: *Epsilonscleroulivirus alphaoryzae.*  **Genus** ***Penoulivirus***  We propose to create two new species in the genus: *Penoulivirus alphaoryzae* and *Penoulivirus alphaerysiphe.*  **Genus *Betarhizoulivirus***  We propose to create a single new species: *Betarhizoulivirus alphamellea.*  The demarcation criteria for species (less than 90% RdRP amino acid identitiy) and genera (less than 30% aa RdRP identity) in the family *Botourmiaviridae* support the proposed classification in different genera and species (Figure 2). | |

**Supporting evidence**

**Table 1.** Newly proposed species of the family *Botourmiaviridae*

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| --- | --- | --- | --- | --- | --- |
| **Genus name** | **Species name** | **Virus name/Acronym** | **Accession number (N/P)** | **Host** | **Reference** |
| ***Botoulivirus*** | *Botoulivirus iotabotrytidis* | Botrytis cinerea botoulivirus 18/BcBoV18 | OK634395/UJT32090 | Fungi, *Botrytis cinerea* | [1] |
| *Botoulivirus kappabotrytidis* | Botrytis cinerea botoulivirus 19/BcBoV19 | OK634396/UJT32091 | Fungi, *Botrytis cinerea* | [1] |
| *Botoulivirus alphapestalotiopsis* | Pestalotiopsis botourmiavirus 3/PBV-3 | MW017457/QTH80197 | Fungi, *Botrytis cinerea* | [2] |
| ***Magoulivirus*** | *Magoulivirus alphaoryzae* | Magnaporthe oryzae botourmiavirus 2/MoBV2 | MW117114/QPF16726 | Fungi, *Magnaporthe oryzae* | [3] |
| *Magoulivirus alphaoxyspori* | Fusarium oxysporum ourmia-like virus 1/FoOuLV1 | MT551010/QPO14979 | Fungi, *Fusarium oxysporum* | [4] |
| *Magoulivirus alphamellea* | Armillaria mellea ourmia-like virus 2/AmOlV2 | MW423803/QUD20356 | Fungi, *Armillaria mellea* | [5] |
| *Magoulivirus alphaheterobasidion* | Heterobasidion ourmia-like virus 1/HetOlV1 | MZ502383/UHK02571 | Fungi, *Heterobasidion parviporum* | [6] |
| *Magoulivirus alphaodothidea* | Botryosphaeria dothidea Ourmia-like virus 1/BdOLV1 | MK189195/QED22728 | Fungi, *Botryosphaeria dothidea* | [7] |
| ***Scleroulivirus*** | *Scleroulivirus alphapestalotiopsis* | Pestalotiopsis botourmiavirus 2/PBV-2 | MW017456/QTH80196 | Fungi, *Pestalotiopsis* spp. | [2] |
|  | *Scleroulivirus alphaoryzae* | Magnaporthe oryzae botourmiavirus 9/MoBV9 | MT995746/UIX55986 | Fungi, *Magnaporthe oryzae* | [8] |
| ***Gammascleroulivirus*** | *Gammascleroulivirus*  *alphaoryzae* | Magnaporthe oryzae botourmiavirus 6/MBOV6 | MN971591/QLJ94430 | Fungi, *Magnaporthe oryzae* | [3] |
| ***Epsilonscleroulivirus*** | *Epsilonscleroulivirus alphaoryzae* | Magnaporthe oryzae botourmiavirus 7/MOBV7 | MN971592/QLJ94431 | Fungi, *Magnaporthe oryzae* | [3] |
| ***Penoulivirus*** | *Penoulivirus alphaoryzae* | Magnaporthe oryzae botourmiavirus 5/MBOV5 | MN648455/QLJ94076 | Fungi, *Magnaporthe oryzae* | [3] |
| *Penoulivirus alphaerysiph* | Erysiphe necator associated ourmia-like virus 21/EnaOLV21 | OL890646/UQG53871 | Fungi, *Erysiphe necator* | [14] |
| ***Betarhizoulivirus*** | *Betarhizoulivirus alphamellea* | Armillaria mellea ourmia-like virus 1/AmOlV1 | MW423802/QUD20355 | Fungi, *Armillaria mellea* | [5] |



***BOTOURMIAVIRIDAE***

***Magoulivirus***

***Scleroulivirus***

***Gammascleroulivirus***

***Betascleroulivirus***

***Deltascleroulivirus***

***Epsilonscleorulivirus***

***Botoulivirus***

***Betabotoulivirus***

***Penoulivirus***

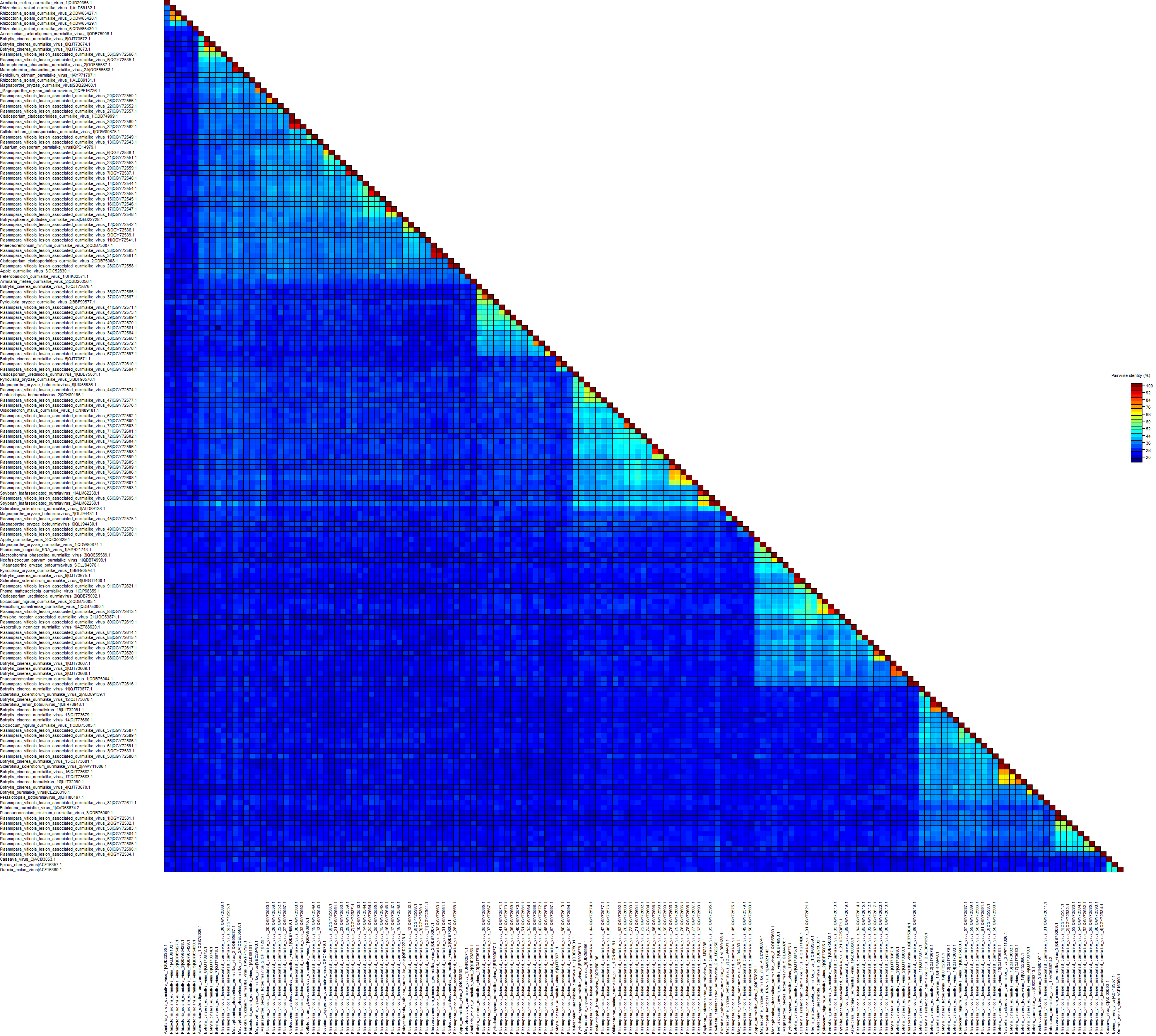
***Rhizoulivirus***

***Betarhizoulivirus***

***Ourmiavirus***

***NARNAVIRIDAE***

**Figure 1** Phylogenetic tree of the expanded and reorganized family *Botourmiaviridae*. A maximum likelihood (ML) phylogenetic tree was constructed based on the multiple amino acid sequence alignment MAFFT (version 7.243) using the E-INS-i settings [9]. All alignments were trimmed with trimAl (v1.3) [10] to remove low-quality regions through heuristic selection under the automatic method (-automated1) based on similarity statistics. The ML phylogenetic trees were constructed using the IQ-TREE (version 1.6.12) [11] with 1,000 replicates ultrafast bootstrap replicates and the best-fit amino acid substitution model (rtREV+F+I+G4) was identified using ModelFinder [12]. Viruses classified in genus *Narnavirus* were used as outgroups.



*Botoulivirus*

*Betabotoulivirus*

*Magoulivirus*

*Scleroulivirus*

*Betascleroulivirus*

*Deltascleroulivirus*

*Gammascleroulivirus*

*Epsilonscleorulivirus*

*Rhizoulivirus*

*Betharhizoulivirus*

*Penoulivirus*

***BOTOURMIAVIRIDAE***

*Ourmiavirus*

**Figure 2** Matrix diagrams of amino acid identities of RNA dependent-RNA polymerase (RdRp) proteins among members of the genera in the family *Botourmiaviridae*. The percent identity matrixes were created via multiple sequence alignment using Muscle. Then, matrix diagrams were color represented using the Sequence Demarcation Tool Version 1.2 [13].

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