Back to Latin and tradition: 
a proposal for an official nomenclature of virus species

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Background
The taxonomy of viruses (i.e. the classification of viruses into well defined clusters) has dramatically improved in the recent years, in particular due to the action of the International Committee on Taxonomy of Viruses (ICTV). The current scheme of classification includes four hierarchical levels: species, genus, family (with the possibility of an intermediate taxon, the subfamily) and order. So far, the ICTV has approved 3 orders, 56 families, 9 subfamilies, 223 genera and 1550 virus species [10]. This taxonomy is developing but the taxa already approved by ICTV remain largely stable (only minor changes have occurred among these taxa between the 6th and 7th ICTV Reports) and are well accepted by most, if not all, virologists.

In parallel, an official virus nomenclature has been established to provide distinctive scientific names to these well accepted taxa. Orders, families, subfamilies, and genera have been given official names ending by -virales, -viridae, -virinae and -virus, respectively. These names are written in italics and with a capital initial letter. The only remaining question is that of official names for virus species. This issue is not simple, has already been the subject of numerous attempts and is currently the subject of a debate, often polemical, among virologists [1–5, 7–9]. All virus species have vernacular (common) names derived from the name of their host, virus-induced disease in this host, geographical site of their discovery and/or other particular characteristics. These names are considered common words: they are written in roman characters without capitalization (except for proper names that keep a capital initial when included within common species names) and differ according to each national language. For instance, “measles virus” in English and “virus de la rougeole” in French designate the same virus, which is responsible for measles in humans. In the revised version of the International Code of Virus Classification and Nomenclature published in 1998 [4], novel rules indicated that species names (i.e. vernacular names since no official name had been defined so far) that were previously exempted from italicization and capitalization, should be printed in italics and have the first letter of the first word capitalized (Rule 3.40), provided they were “accepted names” as approved by ICTV (Rule 3.8). Concomitantly, the examples given in the Rule 3.40 of the code were vernacular English names and, as a matter of fact, conferred the status of official species names to these
English names. This decision appeared questionable for several reasons: (i) it had not been widely debated among the community of virologists; (ii) it might be a real obstacle in terms of pronunciation and orthography for those whose first language is not English; (iii) it made impossible the distinction between a common English name (which refers to virus as a physical entity) and the official species name (which refers to an abstract classification cluster), except by means of typography: for instance, Tobacco mosaic virus and tobacco mosaic virus. This typographic distinction was conceptually and scientifically difficult to understand and to explain; it was an obvious source of confusion for virologists and even more for non-virologists. Nevertheless, this rule was further confirmed since “English has replaced Latin as the language of communication in science and English names for viruses have actually become an international standard also in publications written in other languages” [7], a questionable statement that remains to be demonstrated. For instance, this is not true in virology articles written in French.

Some virologists made critical comments [1–3] and mentioned the well known advantages of a binomial system for scientific names: inclusion of genus affiliation within the name, which adds a considerable amount of information, and clear distinction between vernacular and official scientific names. Unfortunately, this correct statement has resulted in a hybrid solution which consists of adding the name of genus to the end of vernacular English name to obtain the scientific name. In the previous example, the common name is tobacco mosaic virus and the scientific one would be Tobacco mosaic tobamovirus. In this form, the genus epithet remains in italics, which permits a typographic homogeneity [7], but its capital initial is lost, another source of confusion and typographic mistakes. Moreover, the scientific name, which appears as a curious hybrid name made of English and latinized words, is not much different from the common one (the first part is identical), which also may result in confusion. Last but not least, this system will create long names with useless redundancy and pronunciation difficulties such as Influenza A alphainfluenza-virus or Human varicella-zoster varicellovirus. The question of turning these complex hybrid names into official names is now under debate and many French colleagues look very reluctant to support this idea [6]. This question will be discussed by all virologists attending the 12th International Congress of Virology to be held in Paris, 28th July–1st August 2002 [8].

Proposal for a simplified latinized binomial nomenclature of virus species

As recalled previously [1], the classification-based binary nomenclature, initially established by Linnaeus, has been successfully applied to all domains of biology, except for virology. The first part of a species name is the genus affiliation and the second part is a species epithet, both parts being printed in italics with a capital initial. Numerous examples demonstrate that this nomenclature is universally present, widely accepted and correctly used by scientists as well as other specialists of human culture: Homo sapiens, Mus musculus, Arabidopsis thaliana, Escherichia coli, Plasmodium falciparum … etc. As suggested by others [1], the present proposal is simply to apply this system to virus species. This solution is simple because the nomenclature of virus genera now is stable and fits virus taxonomy. Official virus species names thus can easily be derived from genus names as shown in Table 1. These names would fit exactly both the typography and pronunciation of official species names used in other domains such as bacteriology, parasitology, botany and