

## EURL-*Campylobacter*

# Currently recognised *Campylobacter* spp. – a short update

---

Helena Höök

EURL-*Campylobacter* Workshop 2021

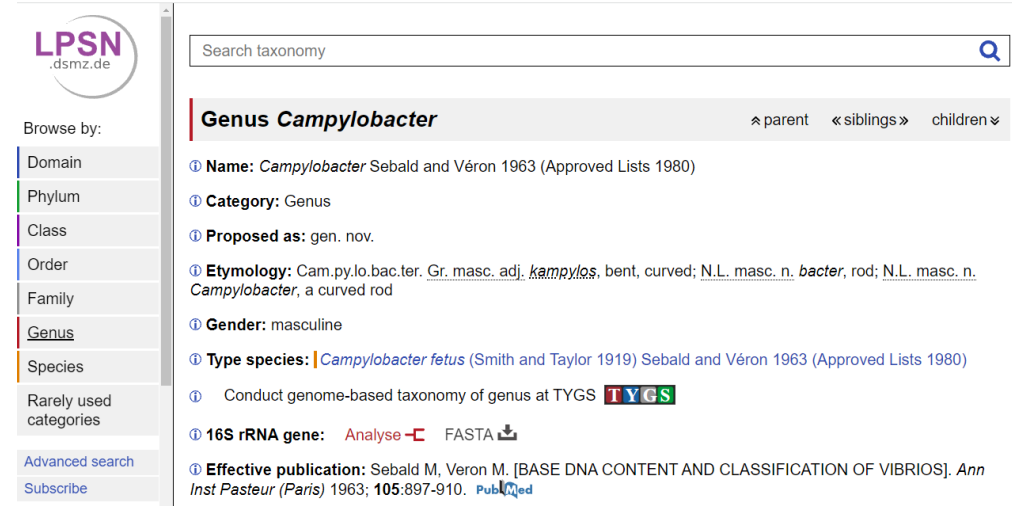


# GENUS CAMPYLOBACTER

- LPSN, List of Prokaryotic names with Standing in Nomenclature

<http://www.bacterio.net/genus/Campylobacter>

- Described and validated *Campylobacter* species and subspecies
- At present, 34 recognised (validly published) *Campylobacter* species, whereof 5 further divided in 11 subspecies
- Newest : *C. portucalensis* (2021)
- Some previous recognised *Campylobacter* species have been moved to other genera: *Arcobacter* (3) and *Helicobacter* (4)



The screenshot shows the LPSN website interface. At the top left is the LPSN logo (LPSN.dsmz.de). Below it is a 'Browse by:' menu with options: Domain, Phylum, Class, Order, Family, Genus (selected), Species, Rarely used categories, Advanced search, and Subscribe. To the right is a search bar labeled 'Search taxonomy'. Below the search bar is the title 'Genus *Campylobacter*' with navigation links for parent, siblings, and children. The main content area lists taxonomic details: Name (Sebald and Véron 1963), Category (Genus), Proposed as (gen. nov.), Etymology (Cam.py.lo.bac.ter. Gr. masc. adj. kampylos, bent, curved; N.L. masc. n. bacter, rod; N.L. masc. n. Campylobacter, a curved rod), Gender (masculine), Type species (*Campylobacter fetus*), and Effective publication (Sebald M, Veron M. [BASE DNA CONTENT AND CLASSIFICATION OF VIBRIOS]. *Ann Inst Pasteur (Paris)* 1963; 105:897-910. PubMed). There are also links for TYGS, 16S rRNA gene analysis, and FASTA download.



# THERMOPHILIC AND THERMOTOLERANT

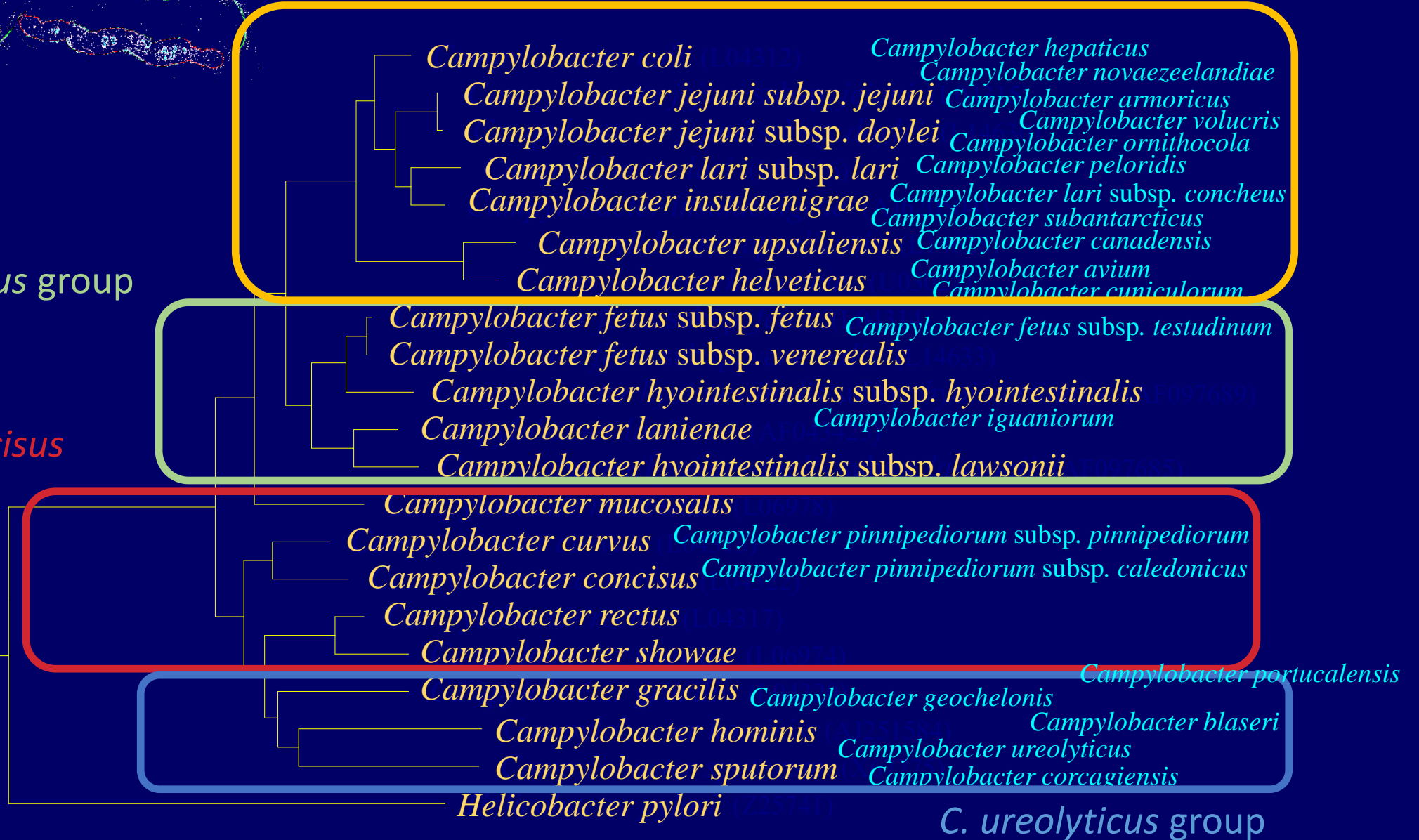
- **Thermophilic** campylobacters have a slightly higher **optimal temperature** (about 41–42 °C) than other campylobacters
- **Thermotolerant** campylobacters are **able to grow** at this slightly higher temperature – used in diagnostics
- Most of the most (in human disease) **important species** are thermophilic or at least thermotolerant
- Some species (mainly *C. jejuni*, *C. coli*, *C. lari*, *C. upsaliensis*), but also some strains of other, usually non-thermotolerant species
- ISO 10272 targets thermotolerant species relevant for human health, mentions these four “and others”



thermophilic (thermotolerant) campylobacters (*C. jejuni* and *C. lari* groups)

*C. fetus* group

*C. concisus*  
group



0.1

# Grouping of *Campylobacter* species


- Suggested grouping according to Costa & Iraola<sup>1</sup>
  - *C. jejuni* group (thermotolerant)
  - *C. lari* group
  - *C. consicus* group
  - *C. ureolyticus* group
  - *C. fetus* group

See [Figure 1](#)

<sup>1</sup> Costa D, Iraola G. [Pathogenomics of Emerging \*Campylobacter\* Species](#). Clin Microbiol Rev. 2019 Jul 3;32(4):e00072–18. doi: 10.1128/CMR.00072-18.



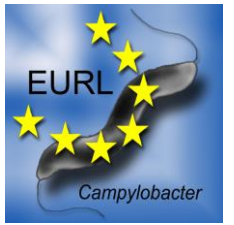
# SPECIES IN HUMAN CAMPYLOBACTERIOSIS

- *Campylobacter jejuni* subsp. *jejuni*
- *Campylobacter coli*
- *Campylobacter lari* subsp. *lari*
- *Campylobacter upsaliensis*
- *Campylobacter fetus* subsp. *fetus*
- *Campylobacter hyointestinalis* subsp. *hyointestinalis*
- *Campylobacter concisus* 
- *Campylobacter sputorum*
- *Campylobacter troglodytis* (not validated)
- *Campylobacter infans* (not validated)

## Oral campylobacters

- *Campylobacter showae*
- *Campylobacter gracilis*
- *Campylobacter ureolyticus*
- *Campylobacter curvus*
- *Campylobacter rectus*

**Note: differing species distribution in low-income countries!**



# FROM THE WORKSHOP ENQUIRY

List the *Campylobacter* species (other than *C. jejuni*, *C. coli* and *C. lari*) you have identified in samples in your laboratory 2017–2021 and in what matrix/matrices they were isolated from?

Species	Number of NRLs	Matrices
<i>Campylobacter lanienne</i>	7	animals (2), faeces, wildboar faeces, pig faeces (3)
<i>Campylobacter fetus</i>	6	animals, bovine faeces (2), faeces (2), human clinical isolate, preputial washing (2)
<i>Campylobacter hyointestinalis</i>	6	pig faeces (3), bovine faeces (2), human clinical isolate
<i>Campylobacter upsaliensis</i>	3	dog faeces, human clinical isolate, water, animals
Other <i>Campylobacter</i> spp.	3	cloaca (2), poultry
<i>Campylobacter sputorum</i>	3	preputial washing (3)
<i>Campylobacter concisus</i>	1	human clinical isolate
<i>Campylobacter helveticus</i>	1	human clinical isolate