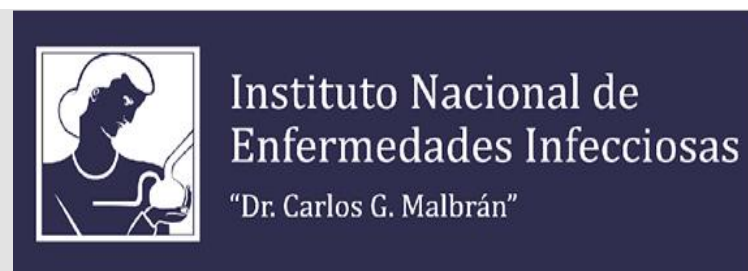


Decoding anaerobes: VITEK MS PRIME vs. SIRIUS

A COMPARATIVE EVALUATION OF MALDI-TOF PLATFORMS FOR CLINICAL IDENTIFICATION



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Anaerobes are slow-growing with demanding culture requirements.



Rapid, reliable, cost-effective identification via MALDI-TOF MS.

Provide insights for laboratory decision-making in Argentina

MALDI network.

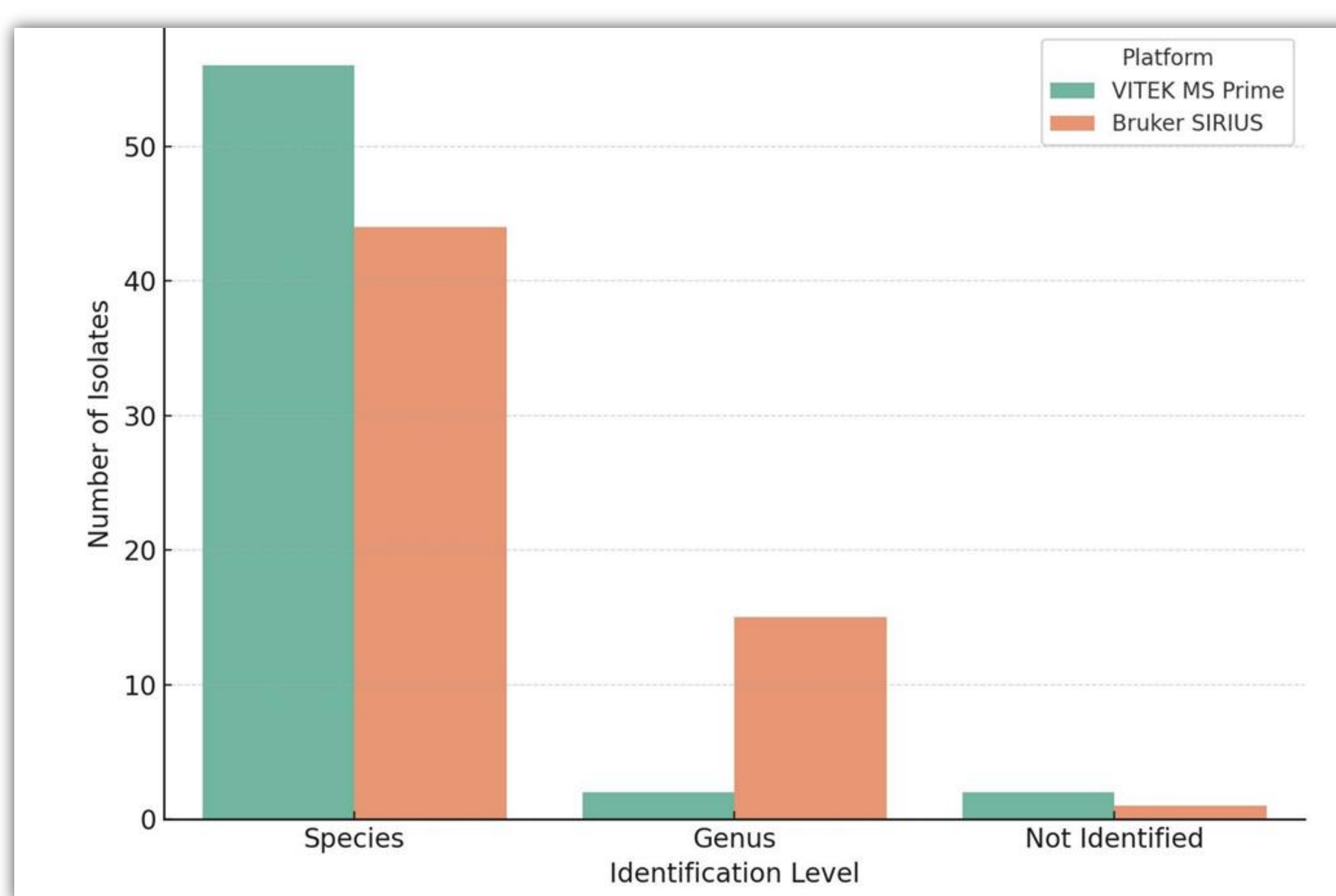
STUDY PROTOCOL

- **Sample size:** 60 clinical isolates tested, **duplicate over 3 days.**
- **Diversity:** 12 genera including *Bacteroides*, *Clostridium*, *Prevotella*, *Fusobacterium*, *Cutibacterium*. **Table 1.**
- **Method:** standardized *in situ* extraction: formic acid – sample-HCCA matrix.
- **Databases:** MBT Compass v.13 and Knowledge Base v.3.3.
- Discordant results were resolved with 16S *rRNA* sequencing according to CLSI standards.

Table 1. Clinically relevant microorganisms evaluated.

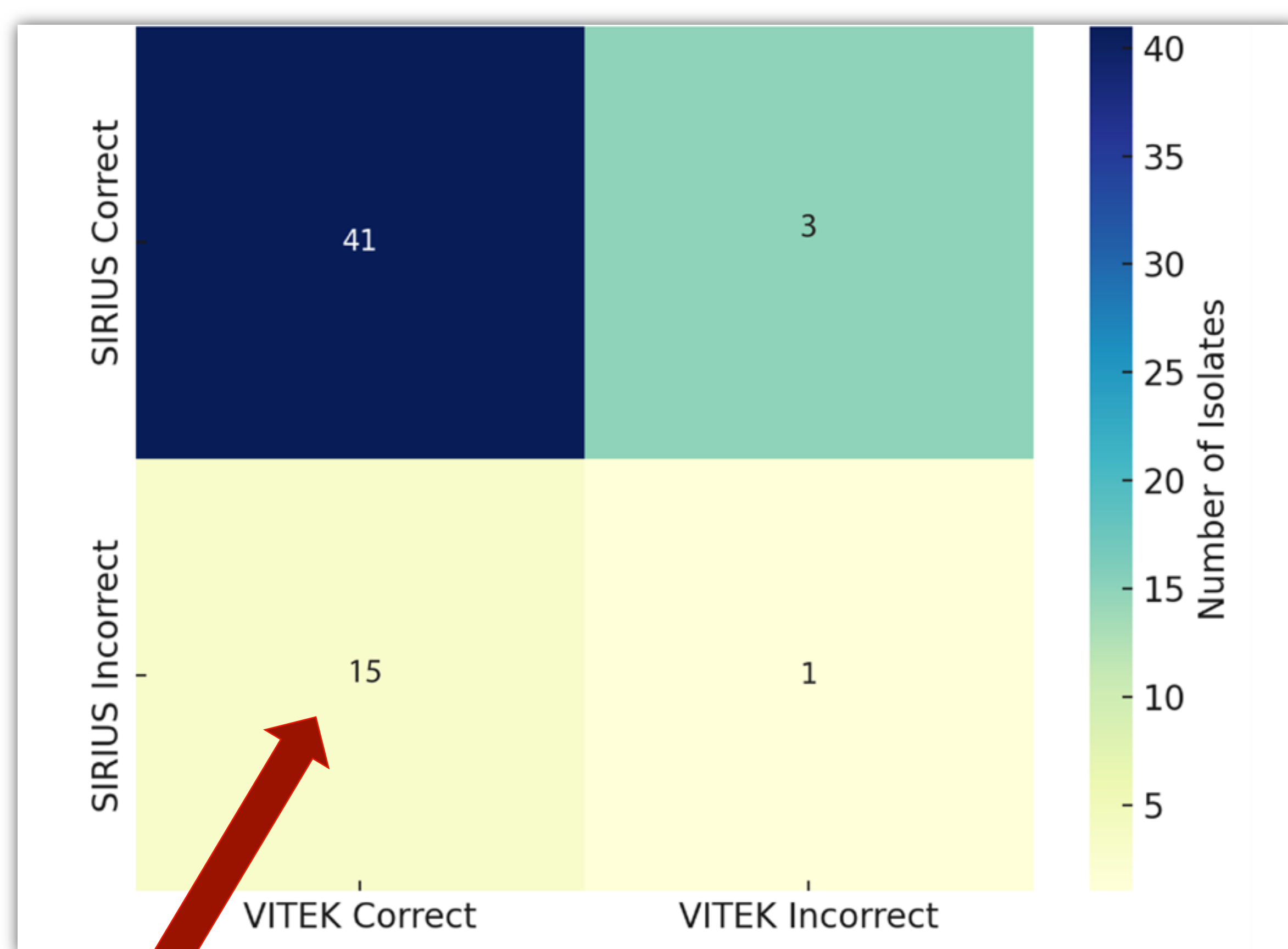
| Anaerobes evaluated | Number of isolates tested |
|--|---------------------------|
| <i>Bacteroides</i> spp. | 4 |
| <i>Bifidobacterium</i> spp. | 1 |
| <i>Clostridium</i> spp. | 9 |
| <i>Finegoldia magna</i> | 2 |
| <i>Fusobacterium</i> spp. | 2 |
| <i>Lactobacillus</i> spp. | 14 |
| <i>Peptoniphilus asaccharolyticus</i> | 2 |
| <i>Peptostreptococcus anaerobius</i> | 1 |
| <i>Porphyromonas asaccharolytica/uenonis</i> | 1 |
| <i>Prevotella</i> spp. | 3 |
| <i>Propionibacterium</i> spp. (<i>Cutibacterium</i> spp.) | 16 |
| <i>Veillonella</i> spp. | 5 |
| Total | 60 |

Figure 1. Comparison of the identification levels by platform.

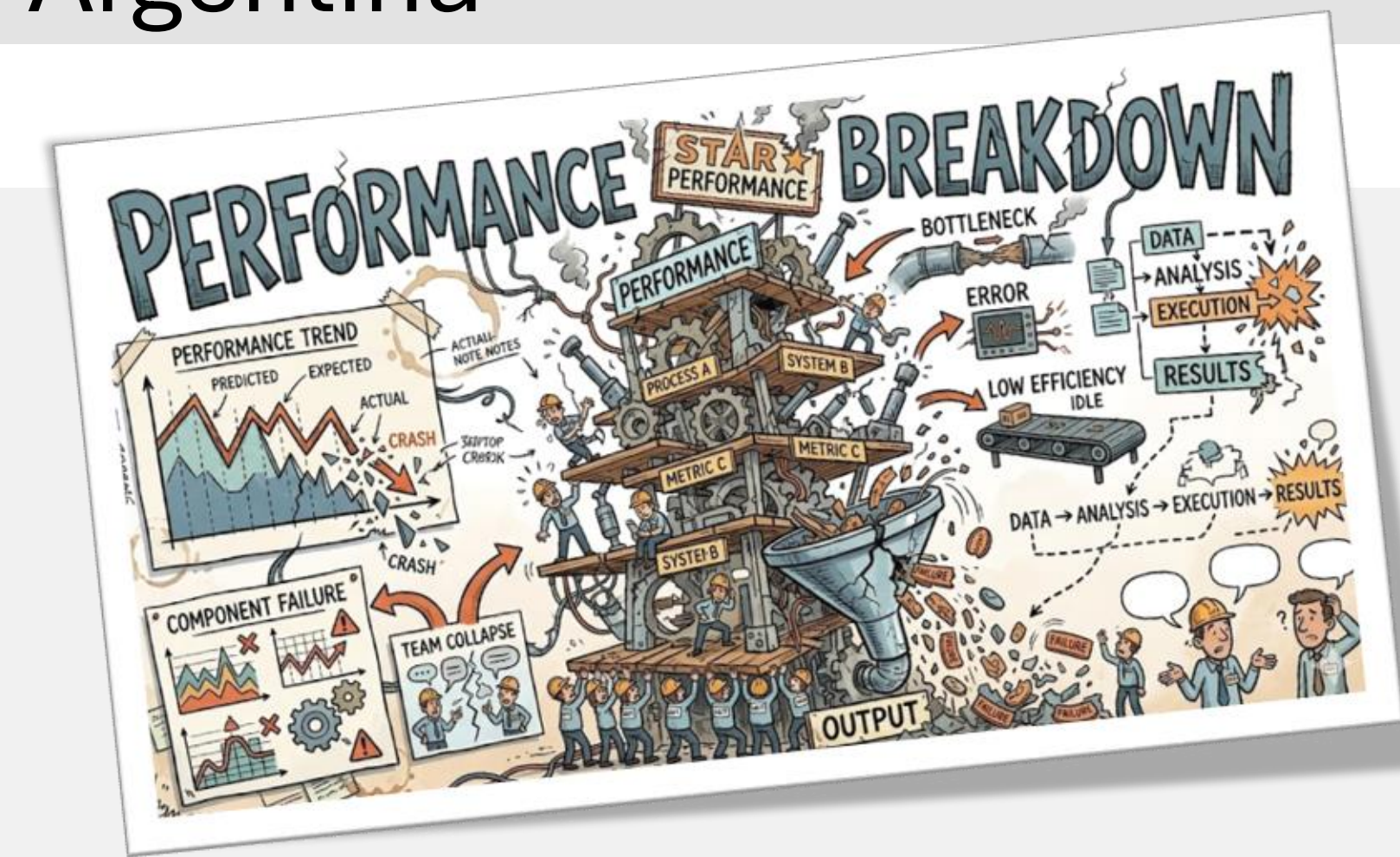


96.7% Accuracy (VITEK) vs. 73.3% (SIRIUS) at Species Level
(p=0.0047)

Figure 2. Heat map of species-level id concordance.



VMSP achieved species-level in 15 isolates for which SIRIUS provided only genus-level due to low score values. Further work is needed to fine-tune the confidence thresholds to enhance reliability.

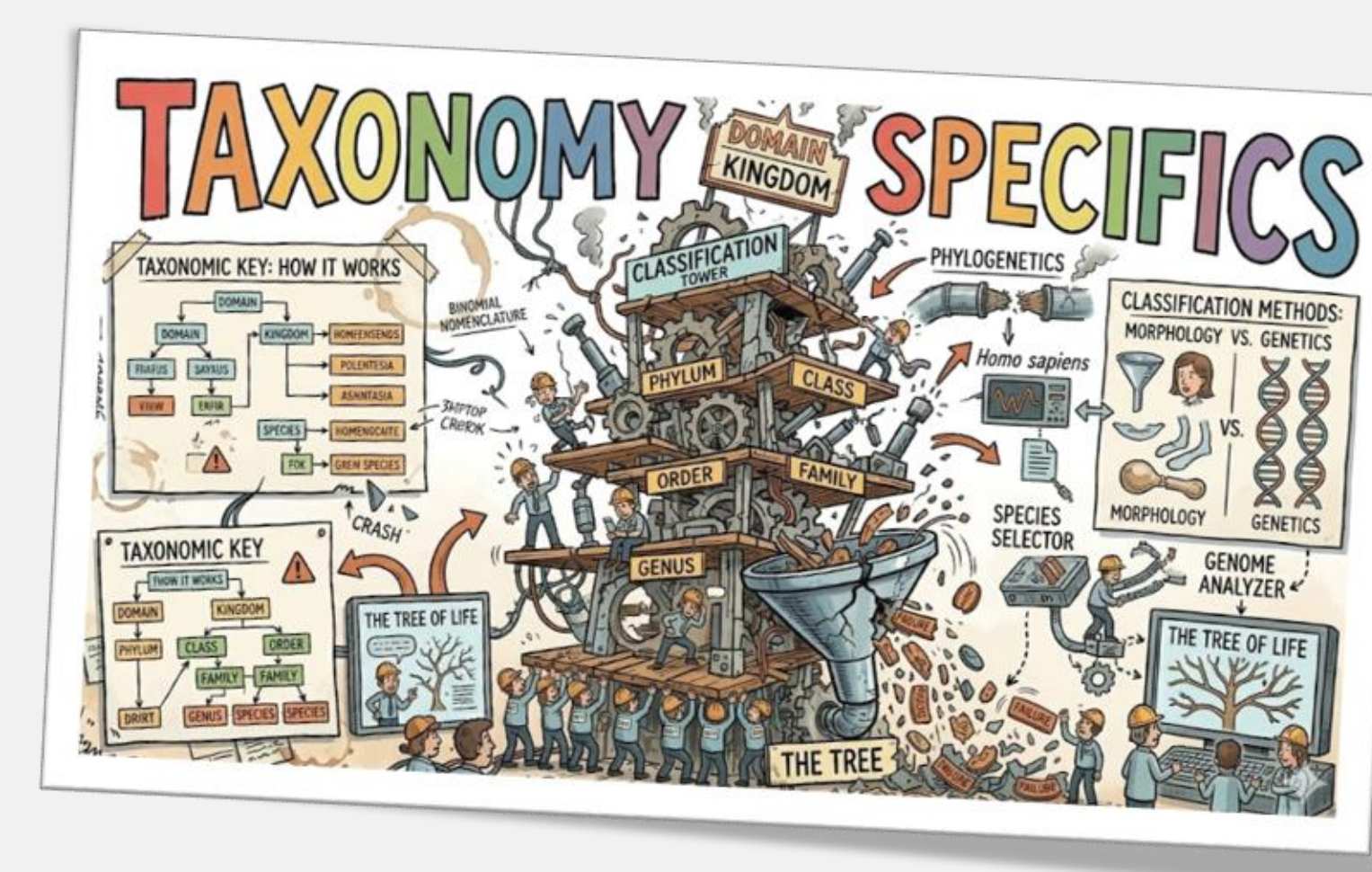


Genus level: tie.

Both platforms showed >97% agreement.

Species level: VMSP wins.

Significantly outperformed SIRIUS (56/60 vs 44/60). **Figure 1.**



VITEK Advantage: uniquely identified *Peptoniphilus asaccharolyticus*.

Figure 2.

SIRIUS Advantage: better genus level resolution for *Peptostreptococcus anaerobius*.

Shared Limitations: both struggled with closely related *Prevotella* and *Lactobacillus* species.

CONCLUSION

- Both systems valuable, but platform selection should match clinical and workflow priorities.
- VMSP demonstrated superior species level accuracy in this cohort; which is critical for antimicrobial stewardship and patient care.

