

PREVALENCE AND ANTIMICROBIAL RESISTANCE PROFILE OF *AEROMONAS* spp. A SINGLE-CENTER RETROSPECTIVE COHORT STUDY

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INTRODUCTION

Aeromonad is emerging as an opportunistic pathogen in humans, with increasing resistance to antibiotics. We aimed to elucidate the prevalence and AMR profiles of *Aeromonas* species in Melaka Hospital.

METHOD

- Single-center retrospective cohort study of patients with *Aeromonas* spp. strain identified in any clinical culture between January 2020 and December 2023.
- Bacterial identification was performed with MALDI-TOF MS. AMS was evaluated using disc diffusion and interpreted according to the 3rd Edition M45 CLSI.

RESULTS

- A total of 72 patients (mean age: 55, male: 74%) were included.
- Predominance of *Aeromonas*
 - *A. hydrophilia* (61%)
 - *A. caviae* (21%)
 - *A. spp* (11%)
 - *A. veronii* (7%)
- Tissue was the most frequent source of strains, implicated by *A. hydrophilia* (14, 70%).
- AMR pattern of *Aeromonads* varied, with
 - 35% to ceftriaxone and piperacillin-tazobactam
 - < 3% to ciprofloxacin, TMP/SMP, gentamicin, and meropenem.
- There was a substantial rise of resistance to all antimicrobials in 2022, including meropenem.
- Amongst all isolates, tissue strains demonstrated higher resistance to ceftriaxone (4/12, 33.3%), pip/tazobactam (3/11, 27.3%), TMP/SMX (1/6, 16.7%), ciprofloxacin (2/5, 40%), gentamicin (1/2, 50%), meropenem (1/1, 100%).

DISCUSSION

- ❖ *A. hydrophilia*, *A. caviae*, and *A. veronii* are the common causative agents, with *A. hydrophilia* accounting for SSTI with high AMR.
- ❖ *Aeromonas* species increasingly harbours AMR, with rate ranging 100% to Ampicillin, 92.5% to Penicillin, 52-65% to cephalosporins and 21.5% to colistin, owing to the presence of beta-lactamase enzymes and preponderant mobile resistance elements (including plasmids, transposons, and genomic islands).
- ❖ Interestingly, our study showed that *Aeromonas* detection was shallow in 2021, followed by an exponential rise in 2022. This finding could be explained by reduced hospitalization of non-COVID-19 patients during the lockdown period, and restoration of healthcare services during the transition to endemic phase of COVID-19.
- ❖ Emergence of antimicrobial resistant *Aeromonas* species may reflect the impact of antibiotic overconsumption and contamination in wastewater and environment.

Type of specimen for culturing of *Aeromonas*

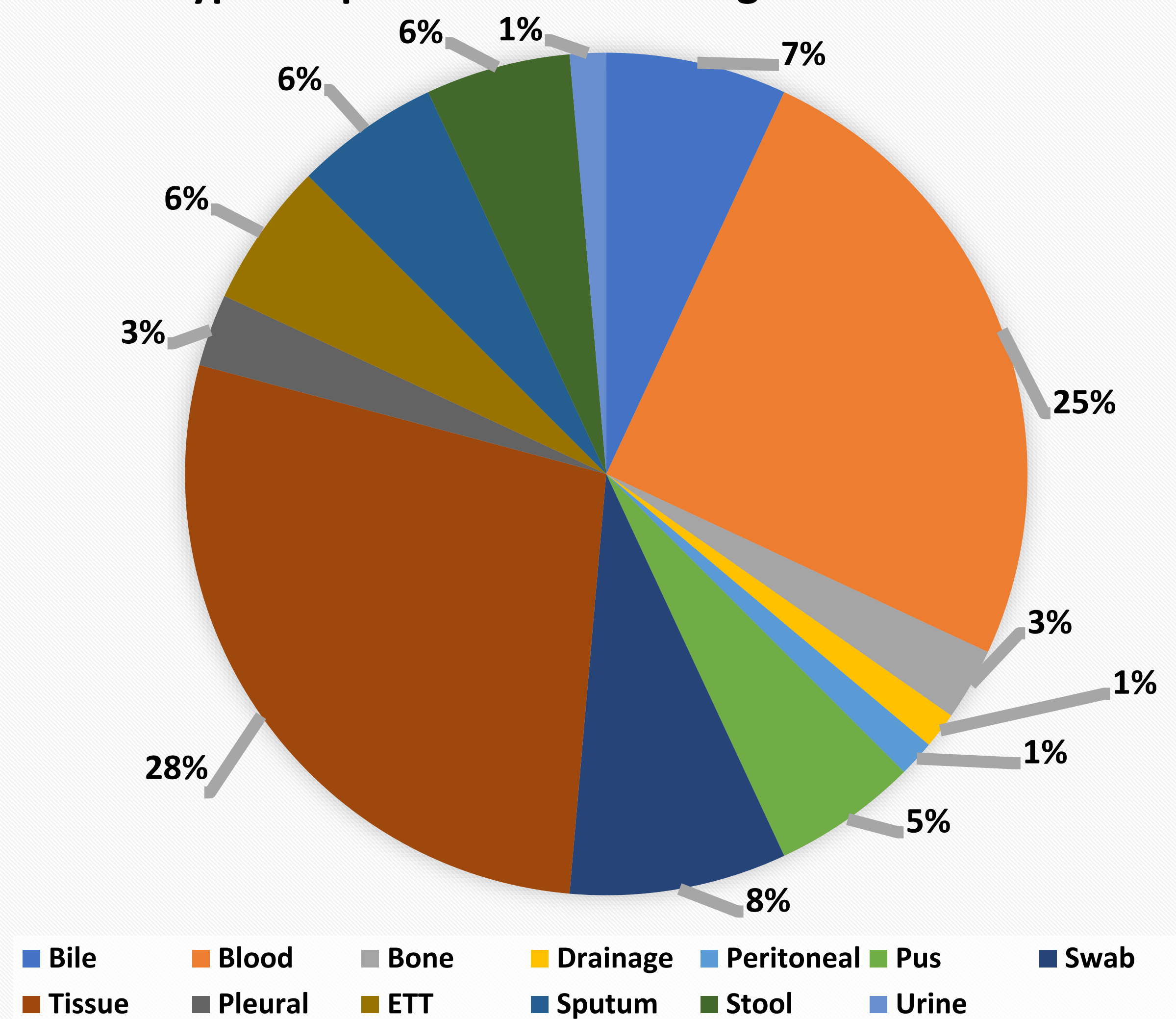


Fig. I describes the type of isolates with *Aeromonas* strains.

Proportion of clinical samples with isolation of *Aeromonas* species

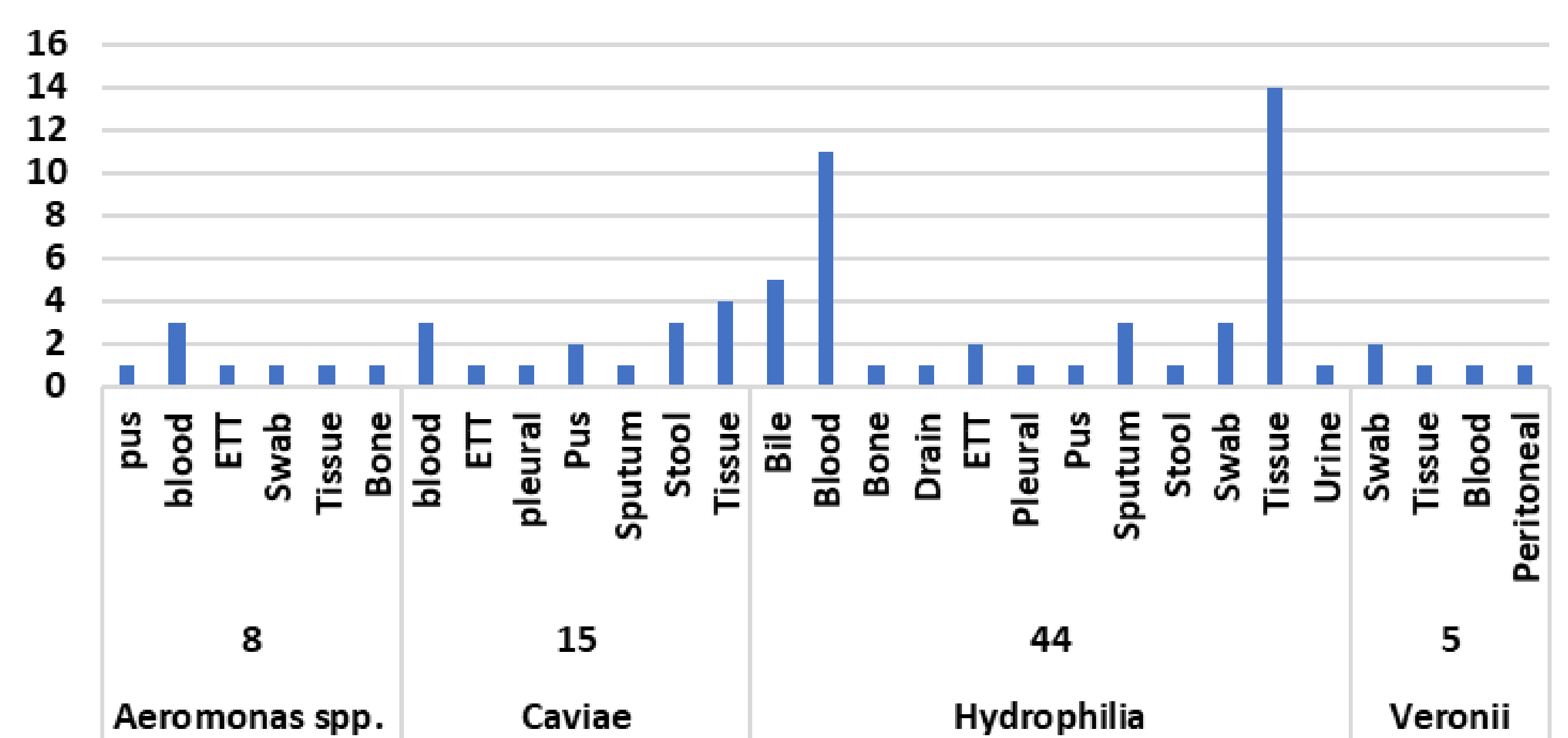


Fig. II illustrates the proportion of clinical isolates with *Aeromonas* strains.

Antimicrobial resistance pattern of *Aeromonas* strain between 2020 and 2023

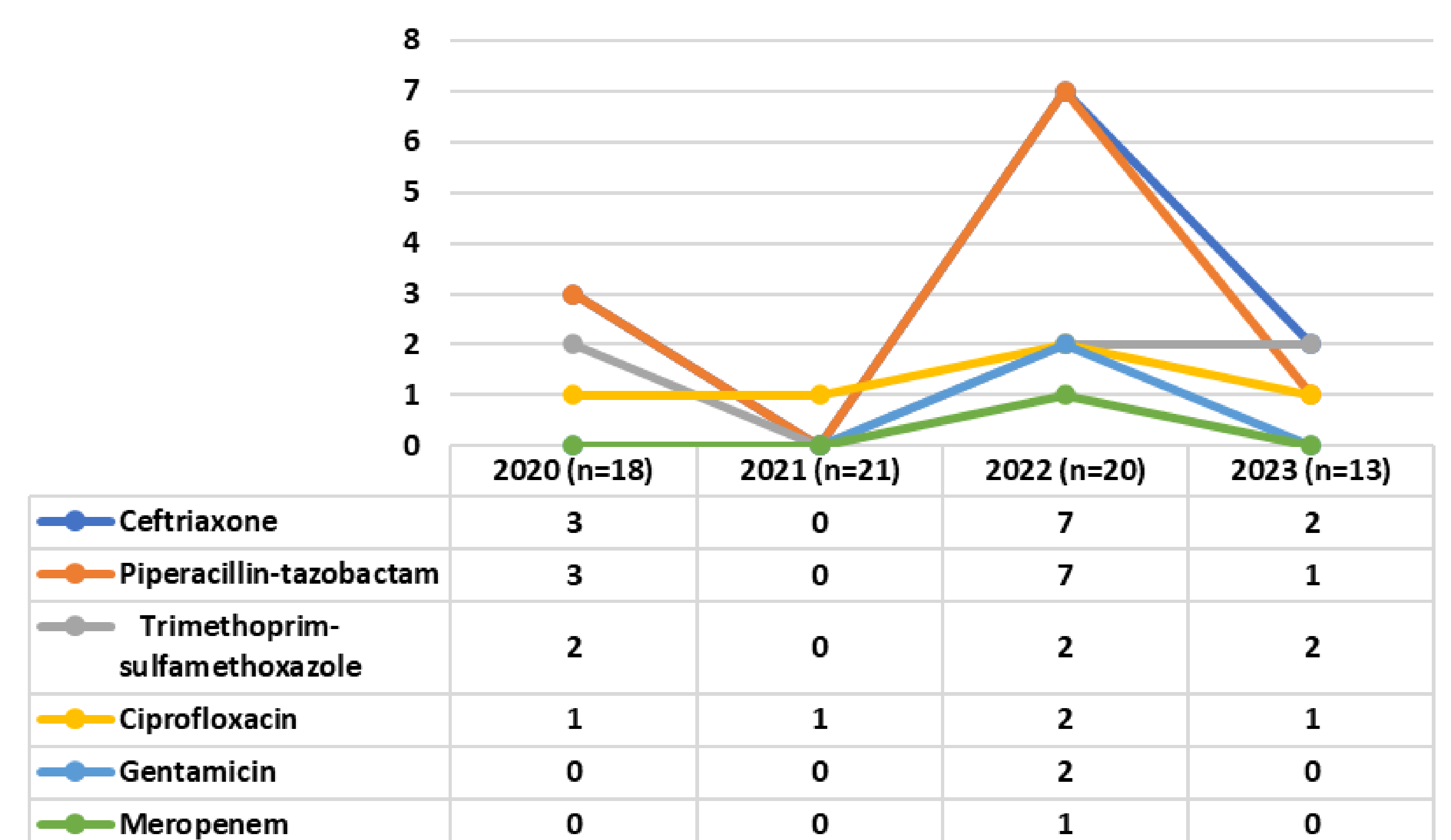


Fig. III describes the AMR pattern of *Aeromonas* strains between 2020 and 2023.

CONCLUSION

This study highlighted the predominance of *A. hydrophilia* in isolates, mainly tissue specimens, and its AMR to beta-lactams.