



RAPID TURNAROUND TIME BACTERIAL IDENTIFICATION

MICRO-ORGANISM IDENTIFICATION & SPECIATION

Accurate and definitive micro-organism classification and speciation, including bacterial identification and pathogen detection, is vital to enable trace-back of the point source contamination and risk assessments. Traditional methods of identification rely on phenotypic identification of the causative organism using Gram staining, culture and biochemical methods^[1]. These methods are time consuming and subject to potential identification errors. Recent advances in automated technologies have provided new instrumentation that allows fast and accurate microbial identification.

ALS Water Resources Scoresby has invested in these superior and fully automated bacterial identification systems. Advantages provided include:

- **Faster result turnaround to clients** - new analysis time is typically hours not days (subsequent to initial isolation).
- **Improved result accuracy and confidence** - an expanded identification database provides higher discrimination between species.
- **Data banking of biotypes of isolates found in water systems** - useful information for understanding trends in contamination.
- **Improved OHS** - eliminates repetitive manual steps.

The automation allows the speciation of a wide range of organisms from Gram negative & positive bacteria including aerobes and anaerobes and yeast in a matter of hours. The rapid turnaround of results and superior accuracy provides the opportunity to make rapid and informed decisions.

A list of the more commonly found individual species that ALS can potentially identify is detailed over the page.



WHY USE BACTERIAL SPECIATION?

Bacterial identification and speciation provides valuable information when investigating potential treatment train failures and contamination of water supplies and catchment areas.

Identification & Tracking of Coliforms in Water Supplies.

Although coliforms are not pathogenic, presence of large numbers can indicate a failure in treatment processes, storage issues or unusual contamination of source waters. The identification of these organisms enables water authorities to trace the contamination source or the management deficiency and to determine the public health significance of their presence.

Speciation of Pathogens from Water Sources.

With the need for alternative water sources such as water recycling & reuse, more extensive testing of pathogens to determine compliance to guidelines and to prove the effectiveness of treatment processes is required. Speciation allows the most effective treatment process to be developed for the type of source water utilized. This speciation can also be applied to the testing of biosolids from wastewater sludges.

SAMPLING REQUIREMENTS

- Bottle:** 250 -350mL sterile, thiosulphate dosed plastic.
- Holding Time:** 24 hours (as per normal micro tests).
- Method:** W-MICRSPEC (For identification of a positive organism only).

REFERENCES

[1] "Identifying and distinguishing bacterial strains using Real Time PCR and Microarrays", March 2011, Premier Biosoft International.#

POTENTIAL ORGANISMS TO BE IDENTIFIED

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Gram-negative Species

ENTEROBACTERIACEAE

<i>Buttiauxella</i>	<i>Ewingella</i>	<i>Morganella</i>	<i>Salmonella</i>
<i>Cedecea (2)</i>	<i>Hafnia</i>	<i>Pantoea</i>	<i>Serratia</i>
<i>Citrobacter (6)</i>	<i>Klebsiella</i>	<i>Proteus</i>	<i>Shigella</i>
<i>Edwardsiella (2)</i>	<i>Kluyvera</i>	<i>Providencia</i>	<i>Yersinia</i>
<i>Enterobacter (8)</i>	<i>Leclercia</i>	<i>Rahnella</i>	<i>Yokenella</i>
<i>Escherichia (5)</i>	<i>Moellerella</i>		

NON-ENTEROBACTERIACEAE

<i>Achromobacter</i>	<i>Brucella</i>	<i>Delftia</i>	<i>Pseudomonas</i>
<i>Acinetobacter</i>	<i>Budvicia</i>	<i>Francisella</i>	<i>Ralstonia</i>
<i>Actinobacillus</i>	<i>Burkholderia</i>	<i>Moraxella</i>	<i>Sphingobacterium</i>
<i>Aeromonas</i>	<i>Chromobacterium</i>	<i>Pasteurella</i>	<i>Vibrio</i>
<i>Alcaligenes</i>	<i>Chryseobacterium</i>	<i>Photobacterium</i>	
<i>Bordetella</i>	<i>Comamonas</i>	<i>Plesiomonas</i>	

Gram-positive Species

<i>Abiotrophia</i>	<i>Gardnerella</i>	<i>Lactococcus</i>	<i>Staphylococcus</i>
<i>Aerococcus (2)</i>	<i>Gemella</i>	<i>Leuconostoc</i>	<i>Streptococcus</i>
<i>Alloiococcus</i>	<i>Globicatella</i>	<i>Listeria</i>	<i>Vagococcus</i>
<i>Enterococcus</i>	<i>Granulicatella</i>	<i>Micrococcus</i>	
<i>Erysipelothrix</i>	<i>Helococcus</i>	<i>Pediococcus</i>	
<i>Facklamia</i>	<i>Kocuria</i>	<i>Rothia</i>	

Anaerobes

<i>Actinomyces</i>	<i>Clostridium</i>	<i>Fusobacterium</i>	<i>Veillonella</i>
<i>Arcanobacterium</i>	<i>Collinsella</i>	<i>Lactobacillus</i>	
<i>Bacteroides</i>	<i>Corynebacterium</i>	<i>Pevotella</i>	
<i>Bifidobacterium</i>	<i>Eggerthella</i>	<i>Propionibacterium</i>	

Yeast

<i>Candida</i>	<i>Malassezia</i>	<i>Saccaromyces</i>	<i>Zygosaccharomyces</i>
<i>Cryptococcus</i>	<i>Pichia</i>	<i>Sporobolomyces</i>	
<i>Geotrichum</i>	<i>Prototheca</i>	<i>Stephanoascus</i>	
<i>Kloeckera</i>	<i>Rhodotorula</i>	<i>Trichosporon</i>	

Neisseria/Haemophilus

<i>Actinobacillus</i>	<i>Cardiobacterium</i>	<i>Haemophilus</i>	<i>Neisseria</i>
<i>Campylobacter</i>	<i>Eikenella</i>	<i>Kingella</i>	<i>Oligella</i>
<i>Capnocytophaga</i>	<i>Gardnerella</i>	<i>Moraxella</i>	<i>Suttonella</i>

Brisbane, Sydney, Melbourne (Springvale), Perth, Newcastle, Roma, Darwin, Adelaide, Townsville, Mackay, Gladstone, Wollongong, Nowra, Mudgee
Water Resources Group: Canberra, Bendigo, Geelong, Melbourne (Scoresby), Wangaratta, Traralgon

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