Australian Government

MSL975062 Perform microbiological tests

Release: 1

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Modification History

Release 1. Supersedes and equivalent to MSL975035 Perform microbiological tests. Clarified that unit applies to animals only – not animals and plants. Minor changes to Performance Criteria. Oral communication removed from Foundation Skills as this is not a focus in the unit. Minor changes to Performance Evidence. Small number of items added to Knowledge Evidence to better reflect Performance Evidence and add content on more modern analysis methods.

Application

This unit of competency describes the skills and knowledge to contribute to the culture, isolation and identification of microorganisms, such as bacteria, fungi, viruses, protozoans, algae and parasites, in order to investigate the physiology and pathology of animals, monitor the natural environment, and to assist in the production of foods, pharmaceutical goods and other manufactured materials.

This unit applies to laboratory technicians and technical officers working in the biomedical, biotechnology, environmental, manufacturing and food processing industry sectors. The results of work performed by technical personnel would normally be integrated, interpreted and reported on by scientists, medical, veterinary or plant pathologists or other responsible officers in a workplace. Although a supervisor may not always be present, the technician will follow workplace procedures that will clearly describe the scope of permitted practice in modifying testing procedures, interpreting data and for communicating test results to people outside the laboratory.

It applies to investigations as well as addressing the broader needs of biotechnology and tissue culture applications.

No licensing or certification requirements exist at the time of publication. However, regulations and/or external accreditation requirements for laboratory operations exist, so local requirements should be checked. Relevant legislation, industry standards and codes of practice within Australia must also be applied.

Pre-requisite Unit

MSL973027 Perform techniques that prevent cross-contamination

MSL973028 Perform microscopic examination

Competency Field

Testing

Elements and Performance Criteria

Elements	Performance Criteria
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
1. Receive samples and process associated request forms	1.1 Identify specimens and request forms that do not comply with workplace requirements 1.2 Record any discrepancies or sample quality issues and indicate action required 1.3 Register samples in accordance with workplace procedures, recording details that allow accurate tracking and chain of custody traceable to employee
2. Prepare for safe microbiological work and aseptic applications	2.1 Apply principles of aseptic techniques to ensure sample and reagent integrity are maintained 2.2 Apply principles of aseptic techniques to ensure personal and environmental safety 2.3 Minimise the production and release of aerosols, using biological safety cabinets where necessary 2.4 Safely dispose of biohazardous materials and other laboratory wastes in accordance with workplace procedures
3. Process samples for direct examination	3.1 Prepare smears of samples for subsequent staining to enable microscopic examination 3.2 Prepare liquid films of specimens for direct observation for motility or cell structure 3.3 Prepare samples to concentrate material for subsequent staining or microscopy
4. Prepare pure cultures for microbiological work and aseptic applications	4.1 Select culture media to maximise growth and optimise production of pure microbial cultures 4.2 Inoculate media aseptically, applying techniques suitable for purpose of culture 4.3 Incubate inoculated media in conditions to optimise targeted growth of organisms
5. Perform procedures that can assist in the identification of microorganisms	5.1 Select staining techniques to demonstrate required cellular characteristics 5.2 Stain prepared films to demonstrate diagnostically useful characteristics 5.3 Inoculate and incubate media with pure cultures to assist in the

Elements	Performance Criteria
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
	biochemical and immunological identification of microorganisms 5.4 Microscopically differentiate between, red blood cells, white blood cells, micro-organisms and epithelial cells 5.5 Select and perform tests on pure cultures to determine the biochemical and immunological identification of microorganisms 5.6 Perform antibiotic susceptibility testing
6. Estimate the number and/or size of micro-organisms in samples	6.1 Count cells in samples 6.2 Prepare serial dilutions of samples aseptically for culture and colony counting 6.3 Indicate the appropriate dilution necessary to reliably count organisms in a serially diluted sample 6.4 Count colonies for calculating number of viable organisms per unit volume
7. Maintain records of laboratory work	7.1 Record and/or check data in accordance with workplace procedures 7.2 Follow procedures to ensure traceability of sample from receipt to reporting of results

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance.

- Problem solving skills to identify artefacts or image aberrations attributable to misalignment or obstruction of light paths or condensers used in microscopy, or with other steps in microscopic examinations.

Other foundation skills essential to performance are explicit in the performance criteria of this unit.

Unit Mapping Information

Supersedes and equivalent to MSL975035 Perform microbiological tests.

Links

MSL Laboratory Operations Companion Volume Implementation Guide is available from VETNet - - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=5c63a03b-4a6b-4ae5-9560-1e3c5f462baa