

**SENARAI & STATUS ALAT HI END SEMUA PTJ**

| BIL | PTJ | NAMA ALAT :  | LOKASI :                             | PEGAWAI BERTANGGUNGJAWAB :                   | NO TEL      | STATUS PERALATAN : | APLIKASI   | Harga Servis Peralatan                         |
|-----|-----|--|--------------------------------------|--|-------------|--------------------|--|--|
| 1   | MB  | Microinjector Manipulator & Research Fluorescence Microscope | Bilik Instrumentasi, MB              | Nik Mohd Hafiz Bin Abdullah (Pegawai Sains)  | 09-668 3752 | Boleh Digunakan    | <ul style="list-style-type: none"> <li>• Single cell isolation, microinjection into adherent and suspension cells</li> <li>• Usage in life cells viewing, injection of foreign substance into cell; embryology.</li> </ul>                                     | Rujuk / Hubungi Pegawai B'tanggungjawab (PIC ) |
| 2   | MB  | Gas Chromatography Mass Spectrophotometer                    | Bilik Instrumentasi Kromatografi, MB | Muhammad Zulhilmi Bin Ramlee (Pegawai Sains) | 09-668 3998 | Boleh Digunakan    | <ul style="list-style-type: none"> <li>• Monitoring and tracking organic pollutants in the environment.</li> <li>• Analysis - chloro-phenols in water and soil, polycyclic aromatic hydrocarbons (PAH), essential oil and identification of unknown</li> </ul> | Rujuk / Hubungi Pegawai B'tanggungjawab (PIC ) |
| 3   | MB  | Semi-Preparative High Performance Liquid Chromatography      | Bilik Instrumentasi Spektroskopi, MB | Nik Mohd Hafiz Bin Abdullah (Pegawai Sains)  | 09-668 3752 | Boleh Digunakan    | <ul style="list-style-type: none"> <li>• Chromatographic separation, sample purification &amp; recovery</li> <li>• Fractionate target components</li> <li>• Analysis - peptides, chemistry, environment, and food products.</li> </ul>                         | Rujuk / Hubungi Pegawai B'tanggungjawab (PIC ) |
| 4   | MB  | Chemical Descrete Analyzer                                   | Bilik Instrumentasi Spektroskopi, MB | Nor Atiyah Binti Mohamed (Pegawai Sains)     | 09-668 3360 | Boleh Digunakan    | <ul style="list-style-type: none"> <li>• Water quality &amp; nutrient testing analysis</li> <li>• Analysis - drinking water, wastewater, environmental samples</li> </ul>  | Rujuk / Hubungi Pegawai B'tanggungjawab (PIC ) |

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| 5 | MB       | Surface Area & Porosimetry Analyzer                               | Bilik Instrumentasi Terma 2, MB      | Mohd Azlien Bin A. Jalil (Penolong Pegawai Sains)  | 09-668 3292 | Boleh Digunakan  | <ul style="list-style-type: none"> <li>• Determination of surface surface areas, pore sizes, shapes and distributions of material</li> <li>• Analysis - catalysts &amp; activated carbon</li> </ul>   | Rujuk / Hubungi Pegawai B'tanggungjawab (PIC ) |
| 6 | MB       | Total Organic Carbon And Nitrogen Analyzer                        | Bilik Instrumentasi Spektroskopi, MB | Muhammad Zulhilmi Bin Ramlee (Pegawai Sains)       | 09-668 3998 | Boleh Digunakan  | <ul style="list-style-type: none"> <li>• Measurement of total carbon and nitrogen content in water, quantity dissolved, quantity suspended*</li> <li>• Measurement of total carbon, organic carbon, inorganic carbon in water</li> <li>• Measurement of dissolved CO2 in water</li> </ul> | Rujuk / Hubungi Pegawai B'tanggungjawab (PIC ) |
|   |          |   |                                      |  |             |                  |   |  |
| 7 | PPIMG    | Fundamental Of Network Application And Development System Trainer | Makmal Rangkaian Piawaian CISCO      | Encik Sumazly Bin Sulaiman (Pensyarah)             | 09-668 3393 | Boleh Digunakan  | CISCO: Routing and Switching (R&S) Module 1 and 2   | Rujuk / Hubungi Pegawai B'tanggungjawab (PIC ) |
|   |          |   |                                      |  |             |                  |   |  |
| 8 | AKUATROP | Measuring Microscope  | Bilik Mikroskop 2, AKUATROP          | Gusti Afiz Bin Gusti Ruslan Noor Pegawai Perikanan | 09-668 3662 | Jarang Digunakan | <p>High precision measuring microscopes featuring the latest in digital imaging technology</p> <p>Measuring microscopes are excellent solutions when you need to inspect and measure 2D and 3D small parts</p>  | Rujuk / Hubungi Pegawai B'tanggungjawab (PIC ) |

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| 9  | AKUATROP | Table Top Microscope                           | Bilik Mikroskop 1, AKUATROP | Farizan Abdullah<br>Pegawai Sains             | 09-668 3883 | Boleh Digunakan  | <ul style="list-style-type: none"> <li>• To observe with fresh, frozen and cryosectioned material</li> <li>• To observe a non-conductive sample without coating</li> <li>• Stereoscopic morphological observation with high resolution and a greater depth of focus</li> </ul>             | Rujuk / Hubungi Pegawai B'tanggungjawab (PIC ) |
| 10 | AKUATROP | Palletizer Machine                             | Hatcheri Kelah, AKUATROP    | Ahmad Ideris Bin Abdul Rahim<br>Pegawai Sains | 09-668 3532 | Rosak            | <ul style="list-style-type: none"> <li>i. Extruder - to produce floating fish feed pellet via extrusion process</li> <li>ii. Drying oven - To drying raw material and pellet</li> <li>iii. Grinder - to grinding gross raw material</li> <li>iv. Mixer - to mixing raw material</li> </ul> | Rujuk / Hubungi Pegawai B'tanggungjawab (PIC ) |
| 11 | AKUATROP | Biological Inverted Microscope                 | Bilik Mikroskop 1, AKUATROP | Zulizah Binti Ochi<br>Pegawai Sains           | 09-668 3839 | Jarang Digunakan | <ul style="list-style-type: none"> <li>1) For in-vitro fertilization, live cell microscopy and biological work.</li> <li>2) Epi-fluorescence and video microscopy.</li> </ul>  | Rujuk / Hubungi Pegawai B'tanggungjawab (PIC ) |
|    |          |  |                             |   |             |                  |  |  |
| 12 | IMB      | Ultra Performance Liquid Chromatography (UPLC) | Bilik Instrumen, Makmal IMB | Julius Yong Fu Siong (Pegawai Sains Kanan)    | 09-668 3679 | Boleh Digunakan  | Fractionation of crude samples into fractions/ compounds   | Rujuk / Hubungi Pegawai B'tanggungjawab (PIC ) |
| 13 | IMB      | Superconducting Fourier NMR Spectrometer       | Bilik NMR, Makmal IMB       | Desy Fitriya Binti Syamsumir (Pegawai Sains)  | 09-668 3779 | Boleh Digunakan  | Elucidation of compounds and determination of chemical formula   | Rujuk / Hubungi Pegawai B'tanggungjawab (PIC ) |

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| 14 | IMB | Floor Type Ultracentrifuge  | Makmal IMB               | Desy Fitriya Binti Syamsumir (Pegawai Sains)   | 09-668 3779 | Boleh Digunakan | Separation of protein samples for protein analysis            | Rujuk / Hubungi Pegawai B'tanggungjawab (PIC ) |
| 15 | IMB | Cabinet Freeze Dryer  | Makmal IMB               | Julius Yong Fu Siong (Pegawai Sains Kanan)     | 09-668 3679 | Boleh Digunakan | Samples drying in large scale                                 | Rujuk / Hubungi Pegawai B'tanggungjawab (PIC ) |
| 16 | IMB | Automated Bacterial Identification System   | Makmal Mikrobiologi      | Nor Atikah bt Mohamed Zin Pegawai Sains Kanan) | 09-668 3603 | Boleh Digunakan | Identification of bacteria and antibiotic susceptibility test | Rujuk / Hubungi Pegawai B'tanggungjawab (PIC ) |
| 17 | IMB | Gas Chromatography Mass Spectrometer Shidmazu/GCMS QPP2010 Ultra/Jepun  | Bilik GC&LC              | Julius Yong Fu Siong (Pegawai Sains Kanan)     | 09-668 3679 | Boleh Digunakan | Determination of volatile compound (gas phases)               | Rujuk / Hubungi Pegawai B'tanggungjawab (PIC ) |
| 18 | IMB | High Resolution Liquid Chromatograph Tandem Mass Spectrometer With-MS And TOF Technology Shidmazu/LCMS-IT-TOF/Jepun | Bilik GC&LC              | Julius Yong Fu Siong (Pegawai Sains Kanan)     | 09-668 3679 | Boleh Digunakan | Determination of compound mass (liquid phases)                | Rujuk / Hubungi Pegawai B'tanggungjawab (PIC ) |
| 19 | IMB | High Performance Thin Layer Chromatography  | Makmal Produk Semulajadi | Desy Fitriya Binti Syamsumir (Pegawai Sains)   | 09-668 3779 | Boleh Digunakan | Separation of crude samples based on rf value                 | Rujuk / Hubungi Pegawai B'tanggungjawab (PIC ) |
| 20 | IMB | High Content Screening  | Makmal Kultur Sel Haiwan | Murni Nur Islamiah bt Kassim (Pegawai Sains)   | 09-668 3690 | Boleh Digunakan | Animal cell culture analysis (cells pathways)                 | Rujuk / Hubungi Pegawai B'tanggungjawab (PIC ) |

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| 21 | IMB  | Fast Protein Liquid Chromatography  | Makmal Genomik & Proteomik                     | Thirukanthan Chandra Segaran (Pegawai Sains Kanan)  | 09-668 3675 | Boleh Digunakan  | Purification of protein samples within molecular weight | Rujuk / Hubungi Pegawai B'tanggungjawab (PIC ) |
| 22 | INOS | Inductively Coupled Plasma-Mass Spectrometer (ICPMS)                                | Makmal ICP-MS, INOS                            | Joseph Anak Bidai (Pegawai Sains Kanan)             | 09-668 3368 | Boleh Digunakan  |   | Rujuk / Hubungi Pegawai B'tanggungjawab (PIC ) |
| 23 | INOS | 120 KV Scanning Eletron Microscope (SEM) (JEOL)                                     | Makmal Operasi SEM, INOS                       | Mahamad Nasir Bin Abdullah (Pegawai Sains Kanan)    | 09-668 3546 | Boleh Digunakan  |   | Rujuk / Hubungi Pegawai B'tanggungjawab (PIC ) |
| 24 | INOS | Fully Inregrated Alpha Spectrometry Counting System                                 | Makmal Instrumentasi Radioaktif, INOS          | Mohd Zulkamal Bin Radzi (Pegawai Sains Kanan)       | 09-668 3178 | Rosak            |   | Rujuk / Hubungi Pegawai B'tanggungjawab (PIC ) |
| 25 | INOS | Research Grade Fluorescent Microscope With Digital System LEICA DM IRE2             | Makmal Biodiversiti 1, INOS                    | Subarjo Merehojono (Pegawai Sains)                  | 09-668 3266 | Jarang Digunakan |   | Rujuk / Hubungi Pegawai B'tanggungjawab (PIC ) |
| 26 | INOS | Dual frequency side scan sonar (GEO ACOUSTICS/LC MK II + GEO PRO)                   | Makmal Oseanografi Fizikal Dan Geologi 1, INOS | Shukri Bin Arsad (Pegawai Sains Kanan)              | 09-668 3471 | Rosak            |   | Rujuk / Hubungi Pegawai B'tanggungjawab (PIC ) |
| 27 | INOS | High Performance Liquid Chromotography System (AGILENT 1100 SERIES)                 | Makmal Am 2, INOS                              | Shaharul Suhaila Binti Ismail (Pegawai Sains Kanan) | 09-668 3384 | Boleh Digunakan  |   | Rujuk / Hubungi Pegawai B'tanggungjawab (PIC ) |
| 28 | INOS | PC-Control Total Organic Carbon And Total Nitrogen Analyzer And Solid Module System | Makmal Instrumentasi Kimia, INOS               | Mohd Zulkamal Bin Radzi (Pegawai Sains Kanan)       | 09-668 3178 | Boleh Digunakan  |   | Rujuk / Hubungi Pegawai B'tanggungjawab (PIC ) |

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| 29 | INOS  | Gas Chromotography Mass Spectrometer         | Makmal Instrumentasi Radioaktif, INOS                 | Mohd Zulkamal Bin Radzi (Pegawai Sains Kanan)   | 09-668 3178 | Rosak            |  | Rujuk / Hubungi Pegawai B'tanggungjawab (PIC ) |
| 30 | INOS  | Hyper Germanium Detector                     | Makmal Instrumentasi Radioaktif, INOS                 | Mohd Zulkamal Bin Radzi (Pegawai Sains Kanan)   | 09-668 3178 | Tidak Digunakan  |  | Rujuk / Hubungi Pegawai B'tanggungjawab (PIC ) |
| 31 | INOS  | CTD Rosette Water Sampler                    | Makmal Oseanografi Fizikal Dan Geologi 2, INOS        | Shukri Bin Arsad (Pegawai Sains Kanan)          | 09-668 3471 | Jarang Digunakan |  | Rujuk / Hubungi Pegawai B'tanggungjawab (PIC ) |
| 32 | INOS  | Skalar Air Segmented Auto Analyzer           | Makmal Oseanografi Kimia Dan Pencemaran Marin 2, INOS | Nurzuhrah Binti Hassan (Pegawai Sains Kanan)    | 09-668 3304 | Jarang Digunakan |  | Rujuk / Hubungi Pegawai B'tanggungjawab (PIC ) |
| 33 | INOS  | Current Profiler                             | Makmal Oseanografi Fizikal Dan Geologi 1, INOS        | Shukri Bin Arsad (Pegawai Sains Kanan)          | 09-668 3471 | Jarang Digunakan |  | Rujuk / Hubungi Pegawai B'tanggungjawab (PIC ) |
| 34 | INOS  | MODIS Ground Receiving System                | Aras 4, Makmal Berpusat (MB)                          | Azri Bin Muhamad (Penolong Pegawai Sains Kanan) | 09-668 3113 | Boleh Digunakan  |  | Rujuk / Hubungi Pegawai B'tanggungjawab (PIC ) |
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| 35 | PPSTM | High Performance Liquid Chromatograph (HPLC) | Bilik Instrumentasi 1, Makmal Pemakanan Manusia PPSTM | Fadlina Binti Yusof (Pegawai Sains Kanan)       | 09-668 4564 | Digunakan        | • Compound identification (Vitamins, Antioxidants, Food additives) | Rujuk / Hubungi Pegawai B'tanggungjawab (PIC ) |

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| 36 | PPSTM | Protein Purification System                                       | Bilik Instrumentasi 1, Makmal Pemakanan Manusia PPSTM      | Fadlina Binti Yusof (Pegawai Sains Kanan)               | 09-668 4564 | Digunakan | <ul style="list-style-type: none"> <li>• Sample Protein preparation</li> <li>• Fractionate target protein</li> <li>• Chromatographic separation, protein purification &amp; recovery</li> </ul>  | Rujuk / Hubungi Pegawai B'tanggungjawab (PIC ) |
| 37 | PPSTM | Atomic Absorption Spectrometer (AAS)                              | Bilik Instrumentasi 1, Makmal Pemakanan Manusia PPSTM      | Fadlina Binti Yusof (Pegawai Sains Kanan)               | 09-668 4564 | Digunakan | <ul style="list-style-type: none"> <li>• Determination of mineral content in food sample</li> <li>• Detection of heavy metal contamination in food</li> </ul>  | Rujuk / Hubungi Pegawai B'tanggungjawab (PIC ) |
| 38 | PPSTM | Trace Gas Chromatography Ultra FID/ECD                            | Makmal Pengurusan Penyakit Dan Perosak Agro-Makanan, PPSTM | Mohd Redhuan Bin Mohd Noor (Pegawai Sains Kanan)        | 09-668 4952 | Digunakan | <ul style="list-style-type: none"> <li>• Detection of Etheylene gas produces by fruits in Post Hrvest treatment such as packaging and storage temperature.</li> <li>• Detection of FAME (Fatty Acid Methyl Ester) on poultry study.</li> </ul> | Rujuk / Hubungi Pegawai B'tanggungjawab (PIC ) |
| 39 | PPSTM | Inductively Couple Plasma-Optical Emission Spectrometer (ICP-OES) | Bilik Instrumentasi, Makmal Sains Tanah PPSTM              | Mohd Kamarul Izhar Bin Kamaruddin (Pegawai Sains Kanan) | 09-668 4561 | Digunakan | <ul style="list-style-type: none"> <li>• Determination of mineral content in sample (food, fertilizer and soil)</li> <li>• Detection of heavy metal contamination in sample (food, fertizer, sediment and soil)</li> </ul>                     | Rujuk / Hubungi Pegawai B'tanggungjawab (PIC ) |

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| 40 | PPSTM | HR-2 Discovery Hybrid Rheometer                      | Bilik Instrumentasi 2, Makmal Pemakanan Manusia PPSTM | Suhana Binti Muhamad Hanidun (Pegawai Sains Kanan) | 09-668 4458 | Digunakan       | <ul style="list-style-type: none"> <li>• Characterize the rheological properties (flow and deformation) of materials.</li> <li>• Measurement of both viscosity and viscoelasticity of fluids, semi-solid and solids sample.</li> </ul>  | Rujuk / Hubungi Pegawai B'tanggungjawab (PIC ) |
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| 41 | PPKK  | GMDSS Simulator With Instructor & Trainee Unit       | Makmal GDMSS, PPKK                                    | Izhar Bin Mohd Mustaat (Pegawai Sains)             | 09-668 3642 | Digunakan       | GMDSS simulators accurately imitate actual ship-to-ship communications and ship-to-shore stations using highly realistic simulated terrestrial and satellite communication systems. Trainees can be familiarised with the correct operation of a variety of GMDSS equipment for distress and general communication as the software emulates recognised GMDSS equipment. | Rujuk / Hubungi Pegawai B'tanggungjawab (PIC ) |
| 42 | PPKK  | Electronics & Instrumentation Equipments & DAS (CBT) | Makmal Elektrik, PPKK                                 | Zulkifly Bin Mohamed Adnan (Pegawai Sains Kanan)   | 09-668 3658 | Boleh Digunakan | Basic and advance alternative current (AC) and Direct Current( DC) application  | Rujuk / Hubungi Pegawai B'tanggungjawab (PIC ) |



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| 43 | PPKK | Steam Engine Module With Training Boiler        | Bengkel Loji Kuasa, PPKK           | Mohd Fadhil Bin Md Shukor (Pegawai Sains)   | 09-668 3652 | Boleh Digunakan | - Beroperasi dengan kaedah mampatan wap air untuk memahami proses pengendalian dalam Loji Kuasa secara konvensional   | Rujuk / Hubungi Pegawai B'tanggungjawab (PIC ) |
| 44 | PPKK | Benchtop X-Ray Diffractometer                   | Makmal Radiasi, PPKK               | Nor Faizah Binti Adam (Pegawai Sains Kanan) | 09-668 3365 | Boleh Digunakan | can perform qualitative and quantitative analysis of polycrystalline materials (peak calculation, phase identification, Percent (%) crystallinity, Crystallite size and strain, Lattice parameter refinement, Rietveld refinement, Molecular structure) | Rujuk / Hubungi Pegawai B'tanggungjawab (PIC ) |
| 45 | PPKK | Kongsberg Full Mission Ship Handling Simulator  | Marine Ship Bridge Simulator, PPKK | Mat Nasir bin Mat Zain (Pegawai Laut)       | 09-668 3641 | Boleh Digunakan | A ship simulator is a system that simulates ships and maritime environments for training, research and is part of the basic training of maritime professionals at maritime school like UMT  | Rujuk / Hubungi Pegawai B'tanggungjawab (PIC ) |
| 46 | PPKK | CNC Milling (5 Axis Ship Model Milling Machine) | Makmal Teknologi Maritim, PPKK     | Mohd Fadhil bin Md Shukor (Pegawai Sains)   | 09-668 3652 | Boleh Digunakan | - Beroperasi dengan mengikut rekabentuk yang dibuat oleh pereka cipta projek untuk menghasilkan suatu produk atau model dan lebih cenderung ke atas reka bentuk yang berkaitan dengan bidang maritim bagi tujuan ujikaji dan kajian.                    | Rujuk / Hubungi Pegawai B'tanggungjawab (PIC ) |

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| 47 | PPKK  | Automated Marine Engine Test Bed  | Loji Kuasa dan Jentera Kapal, PPKK         | Mohd Fadhil bin Md Shukor (Pegawai Sains)        | 09-668 3652 | Boleh Digunakan  | - Mengukur kekuatan dan fleksibiliti engine dalam penguunaan bahan api (diesel) yang berbeza bagi tujuan kajian dan ujikaji. | Rujuk / Hubungi Pegawai B'tanggungjawab (PIC ) |  |
| 48 | PPKK  | Electrokinetic Analyzer   | Makmal Kejuruteraan Air dan Air Sisa, PPKK | Mohd Kamri Bin Mamat (Pegawai Sains Kanan)       | 09-668 3412 | Jarang Digunakan | Solid surface charge analysis  | Rujuk / Hubungi Pegawai B'tanggungjawab (PIC ) |  |
| 49 | PPSA  | FT Infrared Spectrophotometer Perkin Elmer Spectrum GX                              | Telah dilupuskan (PPSA/LPS/2016/067)       |  |             |                  |  |  |  |
| 50 | PPSA  | TGA & DSC Perkin Elmer Pyris 1  | Telah dilupuskan (PPSA/LPS/2016/068)       |  |             |                  |  |  |  |
| 51 | PPSA  | HPLC Agilent Tech/AT 1100 Series  | Makmal Biokimia, PPSA                      | Norazlina Binti Abdul Aziz (Pegawai Sains Kanan) | 09-668 3224 | Jarang Digunakan |  | Rujuk / Hubungi Pegawai B'tanggungjawab (PIC ) |  |
| 52 | PPSA  | Dynamic Rheometer For Liquid Crystal And Emulsion Measurement (Thermo Haake RS 600) | Makmal Kimia Koloid, PPSA                  | Mohd Yusri Bin Mirang (Pegawai Sains Kanan)      | 09-668 3616 | Boleh digunakan  | Measurement of viscosity solid and liquid sample.  | Rujuk / Hubungi Pegawai B'tanggungjawab (PIC ) |  |
| 53 | PPSMS | Gas Chromatograph Shimadzu GCMS 5050A   | Telah dilupuskan.                          |  |             |                  |  |  |  |

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| 54 | PPSMS | High Performance Ion Chromatography System Dionex DX 600                           | Telah dilupuskan. PPSMS/LPS/2016/079 |  |             |   |   |  |
| 55 | PPSMS | Flame And Graphite Furnace Atomic Absorption Spectrometer Varian Spectra 200FS GTA | Makmal Oseanografi 1B, PPSMS         | Sainol Aimi Bin Saidin (Pegawai Sains Kanan) | 09-668 3540 | Boleh digunakan dengan had yang tertentu dan ketepatan yang rendah . Tidak sesuai dijadikan sebagai alat kajian. Alat ini berfungsi tetapi terlalu usang untuk digunakan. Kadangkala mengalami kerosakan secara tiba-tiba | Bagi mengukur unsur logam berat dalam bentuk larutan dengan nilai ralat +/- 0.02ppm | Rujuk / Hubungi Pegawai B'tanggungjawab (PIC ) |

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| 56 | PPSMS | High Performance Liquid Chromatography System Agilent 1100 Series | Makmal Instrumentasi dan Bioteknologi, PPSMS | Mardiah Hayati Yahaya(Pegawai Sains Kanan) | 09-668 3243 | Boleh digunakan dengan had yang tertentu dan ketepatan yang rendah . Tidak sesuai dijadikan sebagai alat kajian. Alat ini berfungsi tetapi terlalu usang untuk digunakan. Kadangkala mengalami kerosakan secara tiba-tiba | Analisis kimia yang digunakan untuk pemisahan, mengenal pasti kompaun dan mengukur setiap komponen dalam campuran larutan atau pelarut dengan kaedah kromatografi larutan | Rujuk / Hubungi Pegawai B'tanggungjawab (PIC ) |
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