



MARIANO MARCOS STATE UNIVERSITY

Bids and Awards Committee

BID BULLETIN No. 2021-032

Project: Procurement of Laboratory Equipment for the Project, Improvement of Garlic Productivity
ABC: P2,755,000.00

Subject: Revised technical Specifications and Opening of Bids

Notice is hereby given to all interested bidders of the following clarifications:

	As Published	As Corrected
1	October 7, 2020; 2:00 PM	October 12, 2020; 2:00 PM
2	ATOMIC ABSORPTION SPECTROPHOTOMETER – P1,850,000.00	ATOMIC ABSORPTION SPECTROPHOTOMETER
	<ul style="list-style-type: none"> - Upgradeable to Dual Flame- Furnace Atomizer for One System only - Upgradeable to add Autosampler for both flame and furnace atomizer - Upgradeable to motorized flame and Furnace atomizer switching - Upgradeable to Micro Sampling analysis - Upgradeable to hydride generating elements - Upgradeable to mercury vapor unit - Upgradeable to High temperature burner - 3D double-beam optics - Automatic Gas Flow Rate Optimization - Automatic gas leak check - Automatic flame ignition and extinguishing - Pressure monitor prevents flashback - Automatic gas shut-off by flame monitor - Sudden power interruption detection and re-ignition safety measures - Mechanism to prevent misuse of the burner - Drain tank level monitor - Easy-to-Use Software - Lamp History Function Assists with Lamp Management 	<ul style="list-style-type: none"> - Upgradeable to Dual Flame- Furnace (Graphite) Atomizer for One System only - Upgradeable to add Autosampler for both flame and furnace atomizer - Upgradeable to motorized flame and Furnace atomizer switching - Upgradeable to Micro Sampling analysis - Upgradeable to hydride generating elements - Upgradeable to mercury vapor unit - Upgradeable to High temperature burner - double-beam optics, 3D capability highly preferred - Automatic Gas Flow Rate Optimization - Automatic gas leak check - Automatic flame ignition and extinguishing - Pressure monitor prevents flashback - Automatic gas shut-off by flame monitor - Sudden power interruption detection and re-ignition safety measures - Mechanism to prevent misuse of the burner - Drain tank level monitor - Easy-to-Use Software - Lamp History Function Assists with Lamp Management





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<ul style="list-style-type: none"> - Software Provides Comprehensive Information Displays and Flexible Settings - Hardware validation software installed as standard - Safety inspections during instrument initialization <p>Specifications:</p> <ul style="list-style-type: none"> - Wavelength range: 85 to 900 nm - Monochromator: Aberration-corrected Czerny-Turner mounting - Number of grating grooves: 1800 lines / mm, Focal length: 300 mm - Bandwidth: 0.1, 0.2, 0.4, 0.7, 1.0, 2.0 nm (6-step automatic switching) - Detector: Photomultiplier tube - Configuration: Optical double beam (with Beam Manager) - Background correction method: - BGC-SR (high-speed self-reversal method) (185.0 to 900.0nm); BGC-D2(D2lamp method) (185.0 to 430.0 nm) - Number of HC lamps: 8-lamp turret, 2 lamps simultaneously lit, 1 for measurement, 1 warming up for next measurement - 2 sockets for High- performance boosted lamp, litting one - Lamp mode: EMISSION, NON-BGC, BGC-D2, BGC-SR - Data Processing: - Measurement mode: Flame continuous method, flame micro - Sampling method, furnace method, flame emission method - Calibration mode: Calibration curve method (select primary, secondary, tertiary), Standard addition method, simple standard addition method (primary expression) 	<ul style="list-style-type: none"> - Software Provides Comprehensive Information Displays and Flexible Settings - Hardware validation software installed as standard - Safety inspections during instrument initialization <p>Specifications:</p> <ul style="list-style-type: none"> - Wavelength range: 185 to 900 nm - Monochromator: Ebert, Aberration-corrected Czerny-Turner mounting, or equiv. - Number of grating grooves: 1800 lines / mm, Focal length: 300 mm - Bandwidth: 0.1, 0.2, 0.4, 0.7, 1.0, 2.0 nm (6-step automatic switching) - Detector: Photomultiplier tube is highly preferred - Configuration: Optical double beam (with Beam Manager) - Background correction method (see *): - BGC-SR (high-speed self-reversal method) (185.0 to 900.0nm); BGC-D2(D2lamp method) (185.0 to 430.0 nm). An equivalent or superior feature may also be considered. - Number of HC lamps: 8-lamp turret, 2 lamps simultaneously lit, 1 for measurement, 1 warming up for next measurement, 2 sockets for High-performance boosted lamp, litting one - Lamp mode: EMISSION, NON-BGC, BGC-D2, BGC-SR - Data Processing: - Measurement mode: Flame continuous method, flame micro - Sampling method, furnace method, flame emission method - Calibration mode: Calibration curve method (select primary, secondary, tertiary), Standard addition method, simple standard addition method (primary expression)
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<ul style="list-style-type: none"> - Repeat analysis: Up to 20 repetitions. Mean value, Standard Deviation (SD) and coefficient of variation (RSD) display - Automatic exclusion of deviant values by setting SD and %RSD - Baseline correction: Automatic correction of baseline drift by offset correction in peak height / peak area modes - Signal Processing: Segment Setting: Signal processing segments can be changed in peak height / peak area modes - Sensitivity correction: Automatic calibration curve correction function using sensitivity monitoring - Calculation factor: Final concentration calculations based on sampled volume, dilution rate, fixed volume, and factor inputs - QA/QC: Select whether to continue or discontinue measurements based on results of evaluation on coefficient of correlation, %RSD, ICV,ICB, CCV.CCB, PB, LCS, SPK, PDS, and DUP. - Power Requirements:220 AV, 60 Hz - Ambient Temperature/humidity:10 to 35°C, 20 to 80% (less than 70% when Temperature is higher than 30 °C) <p>ACCESSORIES INCLUDED:</p> <p>1. Hollow cathode lamp and AAS Standards for;</p> <ul style="list-style-type: none"> -Phosphorus (P) -Iron (Fe) -Copper (Cu) -Zinc (Zn) -Potassium (K) -Magnesium (Mg) -Calcium (Ca) 	<ul style="list-style-type: none"> - Repeat analysis: Up to 20 repetitions. Mean value, Standard Deviation (SD) and coefficient of variation (RSD) display - Automatic exclusion of deviant values by setting SD and %RSD - Baseline correction: Automatic correction of baseline drift by offset correction in peak height / peak area modes - Signal Processing: Segment Setting: Signal processing segments can be changed in peak height / peak area modes - Sensitivity correction: Automatic calibration curve correction function using sensitivity monitoring - Calculation factor: Final concentration calculations based on sampled volume, dilution rate, fixed volume, and factor inputs - QA/QC: Select whether to continue or discontinue measurements based on results of evaluation on coefficient of correlation, %RSD, ICV,ICB, CCV.CCB, PB, LCS, SPK, PDS, and DUP. - Power Requirements:220 AV, 60 Hz - Ambient Temperature/humidity:10 to 35°C, 20 to 80% (less than 70% when Temperature is higher than 30 °C) <p>ACCESSORIES INCLUDED:</p> <p>1. Hollow cathode lamp and AAS Standards for;</p> <ul style="list-style-type: none"> -Phosphorus (P) -Iron (Fe) -Copper (Cu) -Zinc (Zn) -Potassium (K) -Magnesium (Mg) -Calcium (Ca) -Manganese (Mn)
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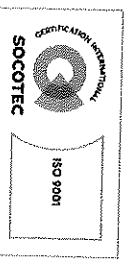
<p>2. Complete PC System, O/S: Microsoft Windows 10, Hard Disk Drive:1TB, Monitor:21.5' LED Colormonitor, Processor: i5, 8G RAM</p> <p>3. Acetylene Regulator</p> <p>4. Initial Supply of Acetylene Gas (Instrument Grade)</p> <p>5. Silent Type, Oil-less Air compressor</p> <p>6. Air Regulator Dual Filtration</p> <p>7. Continuous ink Printer</p> <p>8. Multiple Outlet</p> <p>9. 3 KVA UPS</p> <p>10. Canopy Hood System Complete with installation</p> <p>11. Meters gas line</p> <p>- Supply, delivery and installation with demonstration and onsite hands-on training</p> <p>- One (1) year Warranty for parts and services.</p>	<p>2. Complete PC System, O/S: Microsoft Windows 10, Hard Disk Drive:1TB, Monitor:21.5' LED Colormonitor, Processor: i5(at least) or higher, 8G RAM.</p> <p>3. Acetylene Regulator</p> <p>4. Initial Supply of Acetylene Gas (Instrument Grade)</p> <p>5. Silent Type, Oil-less Air compressor</p> <p>6. Air Regulator Dual Filtration</p> <p>7. Continuous ink Printer</p> <p>8. Multiple Outlet</p> <p>9. 3 KVA UPS</p> <p>10. Canopy Hood System Complete with installation</p> <p>11. Meters gas line – 5 to 10 meters provision</p> <p>- Supply, delivery and installation with demonstration and onsite hands-on training</p> <p>- One (1) year Warranty for parts and services.</p>																										
<table border="1"> <tr> <td colspan="2">Consumables to be provided</td> </tr> <tr> <td>Syringe</td> <td>100 µL</td> </tr> <tr> <td>Plunger</td> <td>For syringe 100 µL</td> </tr> <tr> <td>Glass beaker</td> <td>25 per pack</td> </tr> <tr> <td>Sample vials 1.1 ml</td> <td>Polyethylene, 2000/pack</td> </tr> <tr> <td>Sample vials 2 ml</td> <td>1000/pack</td> </tr> <tr> <td>Capillary assembly</td> <td>For autosampler, 5 per pack</td> </tr> <tr> <td>Plastic beaker, 10 ml</td> <td>5 per pack</td> </tr> <tr> <td>Carousel adaptors</td> <td>5 per pack</td> </tr> </table>	Consumables to be provided		Syringe	100 µL	Plunger	For syringe 100 µL	Glass beaker	25 per pack	Sample vials 1.1 ml	Polyethylene, 2000/pack	Sample vials 2 ml	1000/pack	Capillary assembly	For autosampler, 5 per pack	Plastic beaker, 10 ml	5 per pack	Carousel adaptors	5 per pack	<table border="1"> <tr> <td colspan="2">Consumables to be provided(*)</td> </tr> <tr> <td>Glass beaker, 50ml</td> <td>25 per pack</td> </tr> <tr> <td>Plastic beaker, 10 ml</td> <td>25 per pack</td> </tr> <tr> <td></td> <td>1 pack</td> </tr> </table>	Consumables to be provided(*)		Glass beaker, 50ml	25 per pack	Plastic beaker, 10 ml	25 per pack		1 pack
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<p>2 FUME HOOD – P200,000.00</p>	<p>FUME HOOD</p>																										



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<ul style="list-style-type: none"> • W x D x H not exceeding: 2400 x 850 x 1500 mm; water sink and faucet included • Dished Worktop: Flat and tiled; or covered with other type of material that will be corrosion resistant and acid proof (shall not be stainless steel); preferably solid epoxy resin worktop 19mm thickness • Interior: Epoxy coated fiberglass interior casing with fiberglass adjustable baffles and front panel • Exterior: Cold rolled steel sheet epoxy powder coated • Accessories: Fiberglass cup sink complete with traps and accessories, laboratory swivel gooseneck water faucet, vapor and explosion proof bulb • Exhaust System: 1-3/4 HP U.S. motor blower corrosion resistant, with Nalgene impeller fan and fiberglass housing, 1 set ducting epoxy coated fiberglass 8" inlet diameter 10 meters setup with epoxy coated fiberglass elbow, coupling and weather cap, with a flow-rate for the extractor unit should be up to 1200 cfm (cubic feet per minute) • Power supply: suitable for operating from Power Supply 220-240V; 50HZ • Base Cabinetry for strong acids • Two (2) Electrical Boxes with a minimum of 5 electrical outlets each • Must be compliant with the following standards: <p>a. OSHA Part 1910.1450. OSHA: Occupational Safety and Health Administration. Fume hood operation (Code of Federal Regulations Volume 29 Part 1910.1450)</p>	<ul style="list-style-type: none"> • W x D x H not exceeding: 2400 x 850 x 1500 mm; water sink and faucet included • Dished Worktop: Flat and tiled; or covered with other type of material that will be corrosion resistant and acid proof (shall not be stainless steel); preferably solid epoxy resin worktop 19mm thickness • Interior: Epoxy coated fiberglass interior casing with fiberglass adjustable baffles and front panel • Exterior: Cold rolled steel sheet epoxy powder coated • Accessories: Fiberglass cup sink complete with traps and accessories, laboratory swivel gooseneck water faucet, vapor and explosion proof bulb • Exhaust System: 1-3/4 HP U.S. motor blower corrosion resistant, with Nalgene impeller fan and fiberglass housing, 1 set ducting epoxy coated fiberglass 8" inlet diameter 10 meters setup with epoxy coated fiberglass elbow, coupling and weather cap, with a flow-rate for the extractor unit should be up to 1200 cfm (cubic feet per minute) • Power supply: suitable for operating from Power Supply 220-240V; 50HZ • Base Cabinetry for strong acids – a must • Two (2) Electrical Boxes with a minimum of 5 electrical outlets each • Must be compliant with the following standards: <p>a. OSHA Part 1910.1450. OSHA: Occupational Safety and Health Administration. Fume hood operation (Code of Federal</p>
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<p>b. ANSI/ASHRAE 110-1995. Method of Testing Performance of Laboratory Fume Hoods.</p>	<p>Regulations Volume 29 Part 1910.1450) b. ANSI/ASHRAE 110-1995. Method of Testing Performance of Laboratory Fume Hoods.</p>
<p>3 WATER DISTILLER – 500,000.00 Specification: Water Quality: Ultrapure (type1) and Pure Water (Type3) Flow rate: 2 L/min (max.) Dispense flowrate: Up to 2.0 l/min Inorganics (resistivity at 25°C): 18.2 MΩ.cm Organics (TOC) : <5 ppb Bacteria: <0.001 CFU/ml Bacterial endotoxin: <0.001 EU/ml pH: Effectively neutral DNase : <5 pg/ml RNase: <1 pg/ml Daily usage (max): 10 l/day Daily usage (min): 1 l/day Water source inlet: Direct Tap Water Reservoir: 10 Liters Includes: 1 pc. Purification Pack 1 pc. POU Sterilizing Filter 1 pc. Composite Vent Filter 1 set Pre-Treatment Filters 1 pc. UV Lamp Features: - Power and flexibility. A small unit with big power capabilities. - Space saving design. The compact unit can be placed on the bench or can be wall mounted and has an integrated 7-liter reservoir filled by a 10 l/hr. RO membrane, ensuring that water is always available. - Fully Recirculating. Ensuring the highest microbial purity and guaranteeing pure water at the</p>	<p>WATER DISTILLER Specification: Water Quality: Ultrapure (type1) and Pure Water (Type3) Flow rate: 2 L/min (max.) Dispense flowrate: Up to 2.0 l/min Inorganics (resistivity at 25°C): 18.2 MΩ.cm Organics (TOC) : <5 ppb Bacteria: <0.001 CFU/ml Bacterial endotoxin: <0.001 EU/ml pH: Effectively neutral DNase : <5 pg/ml RNase: <1 pg/ml Daily usage (max): 10 l/day Daily usage (min): 1 l/day Water source inlet: Direct Tap Water Reservoir: 10 Liters (for treated water) Final Water Hardness: nil to 0.02 ppm Final Water Conductivity: 0.05 µS/cm Includes: 1 pc. Purification Pack 1 pc. POU Sterilizing Filter 1 pc. Composite Vent Filter 1 set Pre-Treatment Filters 1 pc. UV Lamp Features: - Power and flexibility. A small unit with big power capabilities. - Space saving design. The compact unit can be placed on the bench or can be wall mounted and has an integrated 7-liter reservoir filled by</p>





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<p>point-of-use as recirculation of the water occurs from the reservoir right to the point of use.</p> <ul style="list-style-type: none"> - Real-time TOC Monitoring. <p>Provides complete confidence in organic purity and clear display at all times. The final quality sensor is placed at the entry of the flexible dispenser giving you peace of mind.</p> <ul style="list-style-type: none"> - Flexible dispenser. The intuitive dispenser offers a clear display of the water purity for absolute confidence as you dispense. - Easy to maintain. The front doors ensure easy access to the consumables, making them quick and easy to replace. - Data capture. Data capture via USB for system performance validation and software updates. - Ideally suited for: Mass Spectrometry, Molecular biology, Electrochemistry, Atomic Spectroscopy, Liquid Chromatography, Cell cultures, Gas Chromatography, Immunochemistry, Spectrophotometry, Media / Buffer prep, General chemistry. 	<p>a 10 l/hr. RO membrane, ensuring that water is always available.</p> <ul style="list-style-type: none"> - Fully Recirculating. Ensuring the highest microbial purity and guaranteeing pure water at the point-of-use as recirculation of the water occurs from the reservoir right to the point of use. - Real-time TOC Monitoring. <p>Provides complete confidence in organic purity and clear display at all times. The final quality sensor is placed at the entry of the flexible dispenser giving you peace of mind.</p> <ul style="list-style-type: none"> - Flexible dispenser. The intuitive dispenser offers a clear display of the water purity for absolute confidence as you dispense. - Easy to maintain. The front doors ensure easy access to the consumables, making them quick and easy to replace. - Data capture. Data capture via USB for system performance validation and software updates. - Ideally suited for: Mass Spectrometry, Molecular biology, Electrochemistry, Atomic Spectroscopy, Liquid Chromatography, Cell cultures, Gas Chromatography, Immunochemistry, Spectrophotometry, Media / Buffer prep, General chemistry
<p>4</p> <p><u>DIGITAL BOTTLETOP BURETTE/DISPENSER</u> - 130,000.00</p> <p>Specification: Volume (Metric): 25ml Partial Volume: 25ml, 12.5ml, 2.5ml Increments: 0.02 ml Accuracy A* ≤ ±: 18µL; CV* ≤: 6 µL Features:</p>	<p><u>DIGITAL BOTTLETOP BURETTE/DISPENSER</u> Electronic Motorized Digital Bottle Top Burette</p> <p>Specification: Volume range: 0.01 to 99.99ml Max. piston capacity: 10ml Accuracy: +/- 0.2% Precision: +/- 0.07% Increments: 0.01ml</p>



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<p>- The 45mm standard thread, plus included adapters, fit most common lab bottles</p> <p>- Titrating tube can be adjusted horizontally and vertically</p> <p>- Integrated SafetyPrime™ valve reduces waste of valuable reagents</p> <p>- Clip-on amber-colored window protects light-sensitive reagents</p> <p>- Valves replaceable for simple, economical service</p> <p>- Large handwheels provide smooth, precise control</p> <p>- Compact design and light weight ensure good stability</p>	<p>Battery: 4000mA/h 5 hours use from full charge</p> <p>Weight: 2lbs</p> <p>Voltage: 110-240V, 50/60H</p> <p>Features:</p> <ul style="list-style-type: none"> - High quality stepper motor provides smooth and accurate titrations - Comes with a 45mm thread and adapters to fit common lab bottles - Recirculation feature minimizes waste when priming - Comes with magnetic stirrer and 20 x 5mm stir bar - TFT display module for simple control - Comes with corded remote control - Comes with adjustable titrating nozzle with flexible tube - Comes with adapters (GL25, GL28, GL32, GL38 & S40mm) to fit all common lab bottles - Preferably AMBER colored window, with self-priming feature, replaceable valve and adjustable titrating tube adjusted horizontally and vertically
<p>5 MECHANICAL MICROPIPETTE – 75,000.00</p> <p>Single Variable Micropipette 0.5ml to 5ml</p> <p>Specification:</p> <p>Volume Range: 0.5ml to 5ml</p> <p>Increment: 10.0µl</p> <p>Accuracy: 0.6 ±%; 30±µl/CV%: 0.2±%; 10±µl</p> <p>Features</p> <ul style="list-style-type: none"> - Autoclavable at 121 Deg. Celsius - Adjust Volume Easily with Plunger - Use Various Tips with a Universal Tip cone <p>- Set the Volume with Perfection</p> <p>- Eject Tips Easily with a Tip Ejector</p> <p>- Work with a Good Grip</p>	<p>MECHANICAL MICROPIPETTE</p> <p>Microliter pipettes are used for soil and water procedures; a set of different volumes is required such as of 0.5 to 10µL, 2-20 µL, 20-200 µL and 100-1000 µL</p> <p>Features</p> <ul style="list-style-type: none"> - Single-channel microliter pipettes - Autoclavable at 121° C, UV-resistant materials - Adjust Volume Easily with Plunger - Use Various Tips with a Universal Tip cone <p>- Set the Volume with Perfection</p> <p>- Eject Tips Easily with a Tip Ejector</p> <p>- Work with a Good Grip</p>



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Pipette for Range	Increment	Accuracy	Precision	Pipette for Range	Increment	Accuracy	Precision
0.5 to 10 µl	0.1 µl	At least ±5.0-1.0%	At least 3.0-0.4%	0.5 to 10 µl	0.1 µl	At least ±5.0-1.0%	At least 3.0-0.4%
2 to 20 µl	0.1 µl	±3.0-1.0%	2.5-0.4%	2 to 20 µl	0.1 µl	±3.0-1.0%	2.5-0.4%
20 to 200 µl	1 µl	±1.8-0.6%	0.7 to 0.2%	20 to 200 µl	1 µl	±1.8-0.6%	0.7 to 0.2%
100 to 1000 µl	5 µl	±1.0-0.6%	0.7 to 0.2%	100 to 1000 µl	5 µl	±1.0-0.6%	0.7 to 0.2%

For the guidance and information of all concerned.

October 1, 2021.

NATHANIEL R. ALIBUYOG
 BAC CHAIR

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