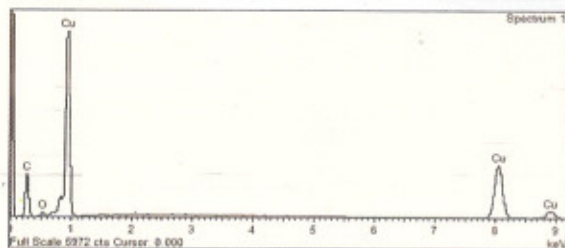


## EDX/EDS Analysis

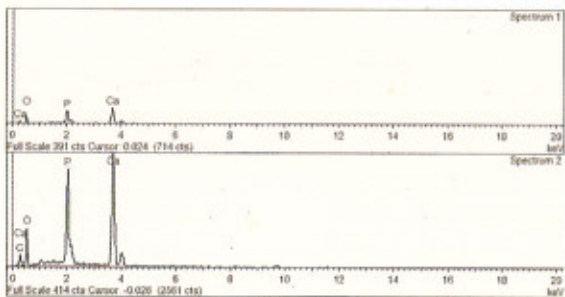
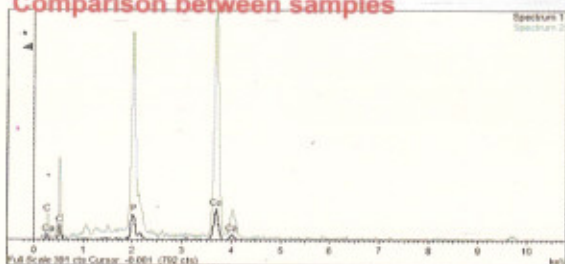
The EDX/EDS (Energy-dispersive spectroscopy) analysis is a technique used for identifying the elemental composition of the specimen, or an area of interest. This technique is best suited for metals, ceramics and minerals.

### Type of EDX Analysis:

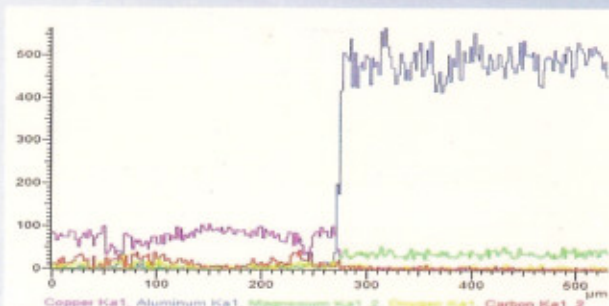
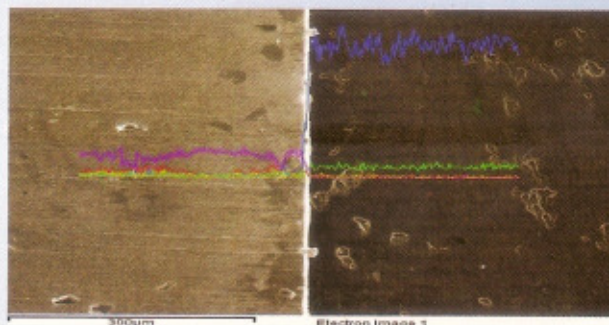
#### Single point



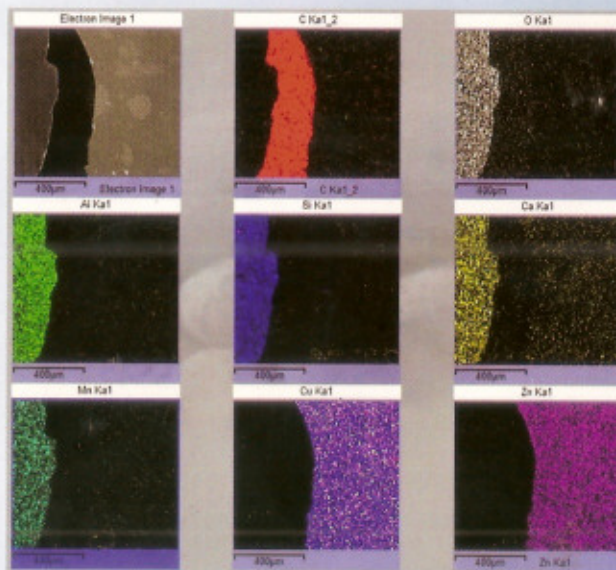
#### Comparison between samples



### Linescan



### Mapping



# Scanning Electron Microscope (SEM)

Services  
School of Health Sciences,  
USM



Scanning Electron Microscope Laboratory  
School of Health Sciences  
Health Campus  
Universiti Sains Malaysia  
16150 Kubang Kerian, Kelantan.  
Email: [semppsk@usm.my](mailto:semppsk@usm.my)  
Attn: En. Mohamad Noor Mohamad Roze  
Tel: 09-767 7628  
En. Mohd Anizan Bakhtiar Bin Abdullah  
Tel: 09-767 7790



## SEM LABORATORY

Our state of the art FEI Quanta 450 Scanning Electron Microscope is the advanced, flexible solution for research applications with extended low vacuum capabilities for the challenging samples and dynamics experiments.

Featuring three imaging modes – high vacuum, low vacuum and Environmental Scanning Electron Microscope (ESEM™), it accommodates the widest range of samples of any SEM system. It is engineered to provide maximum imaging and microanalysis data from all specimens, with or without preparation.

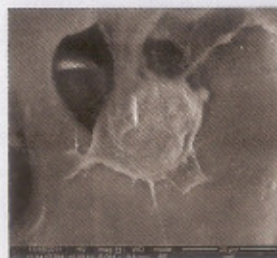
Low vacuum and ESEM capability also enables charge free imaging and analysis of non-conductive and/or hydrated specimens therefore minimizing the amount of sample preparation.

Sample preparation and/or sample images will be processed quickly and efficiently by our technicians. Our expertise and range of experience is invaluable to the customers we serve. Contact us with your needs.

### FESEM Imaging

High resolution field emission SEM column is optimized for high brightness/ high current. It increases the secondary electron imaging capabilities with high resolution high, low and extended low vacuum (ESEM) thus producing clearer, less electrostatically distorted images with spatial resolution down to 1.4 nm – which is 3 to 6 times better than conventional SEM.

### SEM Images



#### Cellular Ultrastructure

Sample: Stem cell  
Mode: High vacuum  
High voltage: 10 kV  
Magnification: 5000x  
Working Distance: 9.8 mm



#### Microbiology

Sample: *E. coli*  
Mode: Low vacuum  
High voltage: 5 kV  
Magnification: 30000x  
Working Distance: 9.9 mm



#### Biology

Sample: Diptera  
Mode: High vacuum  
High voltage: 5 kV  
Magnification: 100x  
Working Distance: 13.0 mm



#### Material Science

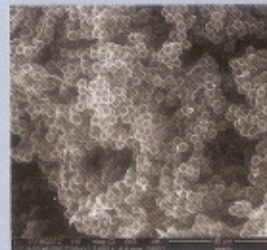
Sample: Stone  
Mode: High vacuum  
High voltage: 5 kV  
Magnification: 2500x  
Working Distance: 10.8 mm



#### Nanoparticle

Sample: Silica  
Mode: High vacuum  
High voltage: 10 kV  
Magnification: 160000x  
Working Distance: 9.8 mm

### ESEM™ Images

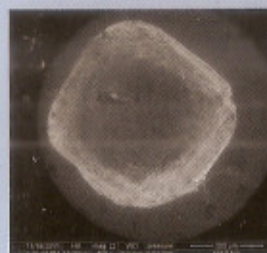


Sample: *Staph. aureus*  
Mode: ESEM  
High voltage: 7 kV  
Magnification: 3000x  
Working Distance: 6.5 mm

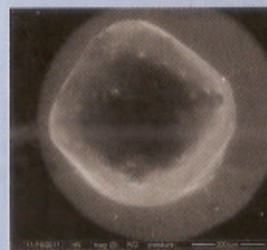


Sample: *Penicillium*  
Mode: ESEM  
High voltage: 15 kV  
Magnification: 3000x  
Working Distance: 7.0 mm

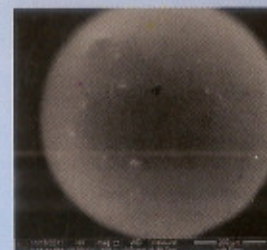
### ESEM™ Experimental



Sample: Sodium chloride  
Mode: ESEM  
High voltage: 15 kV  
Magnification: 400x  
Working Distance: 9.0 mm  
Pressure: 5.0 Torr



Sample: Sodium chloride  
Mode: ESEM  
High voltage: 15 kV  
Magnification: 400x  
Working Distance: 9.0 mm  
Pressure: 5.2 Torr



Sample: Sodium chloride  
Mode: ESEM  
High voltage: 15 kV  
Magnification: 400x  
Working Distance: 9.0 mm  
Pressure: 5.4 Torr