BIOCON SDN. BHD Iskandar Puteri, Johor

Tuesday, 23 December, 2025

INDUSTRY VISIT
TO BIOCON SDN . BHD

Integrating Biotechnology & Computing Systems

The purpose of this visit was to provide students with valuable exposure to Biocon Sdn Bhd, Asia's largest integrated insulin manufacturer. By linking classroom theories with actual industry practices, the experience contributed significantly to both academic learning and professional development. The visit highlighted how advanced technologies and system development are applied in the pharmaceutical industry, offering valuable lesson for students in bioinformatics students.

Company Background

Biocon Sdn Bhd is one of the top Asian biopharmaceutical companies. The company has established Asia's largest integrated insulin manufacturing facility, which is recognised as the first and largest integrated insulin manufacturer in Malaysia. Biocon Malaysia Sdn Bhd has been instrumental in the development of world class insulin products using its proprietary technology platform. The company's commitment to innovation and quality has led to substantial improvements in the affordability and accessibility of insulins in Malaysia. They also believe that everyone, everywhere deserves access to affordable, quality medicines, align to their vision which is to enhance global healthcare through innovative and affordable biopharmaceuticals for patients, partners and healthcare systems across the globe.

Objective of the Industry Visit

Biocon Sdn Bhd is one of the top Asian biopharmaceutical companies. The company has established Asia's largest integrated insulin manufacturing facility, which is recognised as the first and largest integrated insulin manufacturer in Malaysia. Biocon Malaysia Sdn Bhd has been instrumental in the development of world class insulin products using its proprietary technology platform. The company's commitment to innovation and quality has led to substantial improvements in the affordability and accessibility of insulins in Malaysia. They also believe that everyone, everywhere deserves access to affordable, quality medicines, align to their vision which is to enhance global healthcare through innovative and affordable biopharmaceuticals for patients, partners and healthcare systems across the globe.

Group 8

NURCARMELIA AIESYA BINTI MOHAMAD SANI (A25CS0326)
NORJUMA NAZWA BINTI JAMALUDDIN (A25CS0299)
NUR IRDINA AMIRA BINTI MUHAMMAD ROZEE (A25CS0317)
LOK JIE YING (A24SC5023)

Key Observations & Technical Insights

https://www.biocon.com/more/biocon-malaysia/

Role of computing and Information Systems

Computing and information systems play a central role in supporting biotechnology operations. By integrating computer-assisted manufacturing into its production flow, Biocon Malaysia ensures precision in fermentation, purification and insulin formation. To manage large-scale production and meet international demand, Biocon Malaysia relies on enterprise resource planning (ERP) systems that integrate material coordination, workforce scheduling and supply chain logistics. At Biocon Malaysia, quality control is conducted through advanced digital systems that integrate automated inspections with data-driven analysis, thereby ensuring biosimilar insulins consistently meet international regulatory requirements. Complementing this, machine monitoring and maintenance rely on sensor technologies and predictive analytics to optimize equipment performance, prevent disruptions and uphold rigorous safety standards. Databases and automation tools also use to enhance operations. It is to store critical production data, supporting traceability and enabling real-time decision-making. Together, these computing and information systems form the backbone of Biocon Malaysia's ability to deliver high-quality, affordable insulin therapies with efficiency, reliability and compliance.

Biotechnology Operation Observed

The Johor facility of Biocon Malaysia serves as a hub for the complete production cycle of recombinant human insulin and modified insulin, where processes range from developing the drug substance to formulating the final product and assembling delivery devices. Biocon Malaysia operates on fermentation, purification, formulation and strict and thorough testing to ensure its biosimilar insulins meet global regulatory requirements. The company emphasizes strict adherence to safety protocols, cleanliness and standard operating procedures (SOPs) throughout its laboratory and production environments. To protect integrity and ensure worker safety, Biocon Malaysia prioritises sterile environments, enforces monitoring across its operations.

Lab-to-Market Translation

Research& Development (R & D)
Ultilizing cutting-edge science & proprietary platforms to develop high-quality but affordable insulins like rh-insulin & Isulin Glargine

Manufacturing
Handle the entire production process, from fermentation to finished medical devices

Quality & Regulatory
Robust Quality Management Systems (QMS) & approvals from major agencies (EMA, NPRA) ensure product

Commercialization & Marketing
Serve patients in over 120 countries, launch successful biosimilars in developed & emerging markets. Focus on affordable access & lowerinng costs for biologics

Integration of Computing, Network & Biology

The visit showed us how computers help support biological work in the company. Laboratory machines are connected to computer systems that automatically collect and store data. This data can then be shared easily between different departments through network systems. Because of this connection, laboratory staff, production teams, and management can work together more efficiently. It also showed us how important it is to combine knowledge from IT, biology, and engineering in today's industries.

Group 8

NURCARMELIA AIESYA BINTI MOHAMAD SANI (A25CS0326)
NORJUMA NAZWA BINTI JAMALUDDIN (A25CS0299)
NUR IRDINA AMIRA BINTI MUHAMMAD ROZEE (A25CS0317)
LOK JIE YING (A24SC5023)

Key Learning Outcomes

During our visit to Biocon SDN. BHD, we learned how insulin produce from raw substances into a final drug product. The process involves three stages which are upstream, downstream and data analytics. In the upstream stages, fermentation is used to produce insulin under controlled conditions. The downstream stage focuses on separation and purification to ensure the pureness of the insulin. Lastly, data analytic plays an important role in monitoring the process, recording data and maintaining quality. Furthermore, this visit help us understand how biotechnology and information systems work together in real industries. It also strengthened our understanding of course concepts and increased our awareness of career opportunities in biotechnology and industrial computing.

Learning Outcomes, Reflection & Conclusion

Skill & Knowledge Development

The industrial visit to Biocon Malaysia helped us better understand what working in the biotechnology industry is really like. We learned how important safety and cleanliness are, especially in areas such as fermentation and drug production, where strict procedures must be followed to ensure product quality and patient safety. We also saw how computers and data systems are used throughout the production process. Automated machines and monitoring systems help control fermentation, separation, and quality checks, making the process more accurate and efficient. This helped us understand how information systems support biological work in real industrial settings. Besides technical knowledge, the visit also improved our soft skills. Listening to industry professionals and asking questions helped build our communication skills, while working together during the visit encouraged teamwork. Overall, the experience gave us useful insights and better preparation for future careers in biotechnology and industrial computing

Relevance to Academic Studies & Carrier

This visit helped us clearly see how what we learn in class is used in real industrial settings. Concepts from the Technology and Information System course, such as data systems, automation, and process control, were applied directly in the biotechnology manufacturing process. This made our learning feel more meaningful and practical. The exposure to the biotechnology industry also helped us understand the wide range of career opportunities available. It increased our awareness of potential careers in biotechnology, industrial computing, data analytics, and information systems management, and motivated us to explore these fields further.

Conclusion

Overall, the industrial visit to Biocon Sdn. Bhd was a very valuable experience. It gave us real insight into how technology and information systems support complex biotechnology operations in the industry. This type of industry exposure is important for students because it helps improve understanding, build confidence, and prepare us for future professional careers.

Acknowledgement

We would like to sincerely thank Biocon Sdn Bhd for their warm hospitality and for sharing their knowledge and experience with us. We also extend our appreciation to the lecturers, organisers, and staff who made this industrial visit possible.

Group 8

NURCARMELIA AIESYA BINTI MOHAMAD SANI (A25CS0326)
NORJUMA NAZWA BINTI JAMALUDDIN (A25CS0299)
NUR IRDINA AMIRA BINTI MUHAMMAD ROZEE (A25CS0317)
LOK JIE YING (A24SC5023)