

About ISSR

It is a public institution (based in Sulaimani city-Iraq) affiliated to the Ministry of Higher Education of the Kurdistan Region of Iraq (KRI).

Vision

Becoming a reliable Centre of Excellence for strategic studies to address national and global challenges.

Mission

- 1- Delivering cutting-edge research and strategic studies to find knowledge-based solutions to local, national, and global challenges and needs.
- 2- Fostering interdisciplinary research to tackle complex problems and drive innovation.
- 3- Producing reliable data and knowledge that can inform decision-making and empower communities, especially marginalized and underserved communities.
- 4- Building extensive networks and research collaborations, locally and internationally.
- 5- Developing high-quality research capacity building and consultation.

Field and Application

*Foodstuffs are the major application for freeze-drying. One widely known example is the production of granulated instant coffee or the drying of fruit, e.g. for breakfast cereals.

* Other areas of application are the restoration of water-damaged documents or the drying of archaeological artefacts.

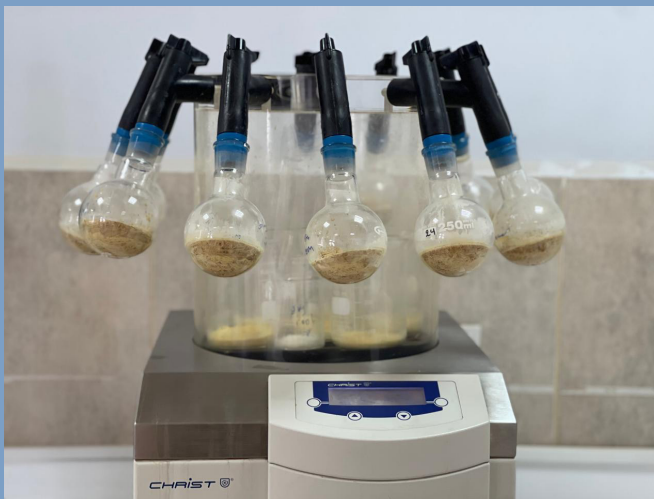
*Drying of biotechnological and pharmaceutical products, e.g. tissues and tissue extracts, bacteria, vaccines, and sera is another important area of application . they are dissolved in water can be preserved by freeze-drying. During this process, the biological properties of these sensitive substances are preserved. The compounds remain unchanged from a qualitative and quantitative point of view. After the addition of water, the products will have the same characteristics as the original products.



4-Freeze-dryer Alpha 1 LDplus

Description

Freeze-drying or lyophilization is a procedure (dehydration technique) for the gentle drying of high-quality products. This means that the product's water content transitions from a solid to a gaseous state — or from ice to vapor — without going through the liquid state. Freeze-drying is considered a high-quality dehydration method.



Result Explanation

- The end of the drying process is reached when both the product and shelf temperature are clearly in the positive range (+15 to +20°C) and if their difference is not greater than 5 K.
- Another indication of the end of the drying process is the behaviour of the vacuum and of the ice condenser temperature. The ice condenser is no longer subject to load and reaches the final temperature of approximately -5°C or -85°C. The pressure in the drying chamber decreases in accordance with the ice condenser temperature.
- The vacuum pump will be switched off and the drying chamber will be aerated via a rubber valve or via the aeration valve
- The aeration valve can also be used to flood the unit with nitrogen or another inert gas instead of ambient air.
- Then, the product can be removed from the unit.

Sample Type

The freeze-dryer is suitable

- for freeze-drying materials such as bacteria and virus cultures, blood plasma, serum fractions, antibodies, sera, vaccines, and pharmaceutical products
- for freeze-drying plant extracts, e.g. for biochemical tests
- for freeze-drying inorganic materials, e.g. nanoparticles
- for freeze-drying numerous other products (for further information

please contact our qualified personnel)

Any other use beyond this area of application is regarded as improper use.

Contact Person

Full name: Bahez Othman Ismael

Title: Senior biologist

Email: bahez.osman@kissr.edu.iq

Contact No.: 00964 7736989939