Ozone sterilizer “OzOne”

Development status

Phase 3

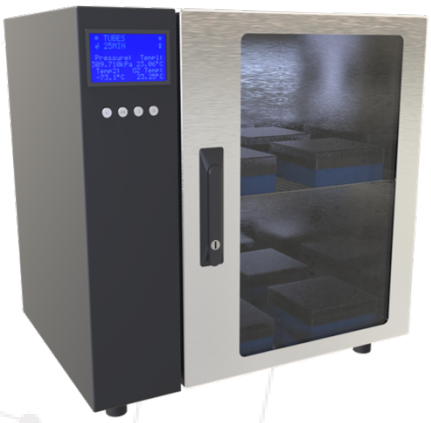
Technology validation and implementing it in real environment. Testing the technology outside of the laboratory and its adjustment to external conditions.

IP protection status

No patent, protected as a know-how.

Partnering strategy

Co-development



Institution

MUNI TTO Technology Transfer Office

Masaryk University

Challenge

In basic plant research, the in vitro cultures require absolute sterility; therefore, all plant seeds must be sterilized before the experiment. Current methods commonly used in the world for seed sterilization are unsatisfactory. For example, the sterilization in 70% EtOH requires a lot of work and the seeds can use germination power due to imbibition with water and premature braking of dormancy. The sterilization by sodium hypochlorite is very laborious, and the drying of the seeds takes time. Moreover, both methods are not ideal for big amount of seeds. Current high-throughput sterilization methods by gaseous chlorine require large fume hoods, take long time (6-16h), the gas is corrosive and dangerous for the user. This solution provides a better way how to do it, fast and without corrosive reagents and exhausts.

Description

The „OzOne“ is a prototype of a table top laboratory sterilizer (size of a bigger microwave oven). It is a 3rd generation working prototype, tested in a laboratory (CEITEC MU Plant Sciences labs). Ozone is a reactive oxygen derivative. It can be produced on-site; it is very reactive, but only for a short time (then decomposes back to oxygen, which is harmless). The use of ozone does not produce any waste – it is ecological. Sterilised seeds remain dry and dormant and are not at risk of losing viability due to swelling or premature dormancy. Unlike the chlorine gas sterilization method, this method is very fast (0.25-2h), and the seed sterility is on the same level.

Commercial opportunity

The potential company can add this sterilizer to their portfolio of instruments.