

# Call for expressions of interest to look for an industrial producer in Portugal of virgin olive oil to develop an Industrial Trial with the new technology of Pulse Electric Fields (PEF) for healthier olive oil extraction

**PHENOILS CONSORTIUM AND EPS IN PARTICULAR ARE LOOKING FOR A PORTUGUESE OIL MILL TO CARRY OUT AN INDUSTRIAL TRIAL DURING THE SEASON 2021-2022 AT HIGH SCALE FOR TESTING THE NEW TECHNOLOGY PULSE ELECTRIC FIELD FOR THE INCREASE OF PHENOLS AND YIELD IN THE EVOOS.**

**15 JULY 2021, PORTUGAL**

## **SUBJECT OF THE CALL**

Within the EIT FOOD project - PHENOILS (New technologies implementation in RIS regions' olive oil mills for healthier olive oil extraction), the partner of the EPS consortium (EnergyPulse Systems) launches this request in search of a Portuguese collaborative mill for a small-scale industrial test on the new technology developed by them based on Pulse Electric Fields for the improvement of the extraction and quality of virgin olive oils for the production of an Extra Virgin Olive Oil of superior quality).

The equipment to be tested (EPULSUS® by EPS) has an output power of 5kW x2. This output power corresponds to a capacity around 8 ton/h of olives (kneading line not exceeding 200 ton/day).

The technology (Pulsed electric fields, PEF) is based on solid-state Marx Modulator and generates monopolar pulses for PEF treatment.

Specification of the equipment: output maximum voltage of 10000 V; maximum current of 300A; pulse width (2 to 200 microseconds) and pulse frequency (1 to 200 Hz) can be adjusted according to the necessary energy delivered during the treatment.

Electrical input for one equipment: 230 Vac, 1phase, 50/60Hz; 2x15A @230Vac.

The equipment has IP54. Cooling is made with forced air.

The continuous treatment will be applied on 2 treatment chambers installed in series and in line with the olive processing line. The treatment chambers are DN50 and are enclosed in a safety box during operation. The position of the treatment chambers can be defined together with the oil mill.

Treatment time (residence time) is below 1 second. This value will depend on flow rate and PEF parameters optimization.

### **ELIGIBLE APPLICANTS**

The test must be carried out in an industrial oil mill located in Portugal, which has the capacity to grind 8 tons / 24 hours in each of its lines and which has more than one 1st extraction line to be able to carry out a comparative test with the same olives.

The oil mills that could accede to this call should meet the following criteria:

- Portuguese Oil Mill
- Interested and open for the realization of a comparative test between the traditional system (kneading, malaxation and centrifugation) and the PEF integrated treatment (kneading, pulse electric fields, beating and centrifugation), with the aim of analyzing the improvement of production and quality in the EVOOs produced by both methods.
- Producer of arbequina EVOO
- Capacity of 8 tn/day
- More than 2 lines of molturation
- R&D team to give support to the trials
- Laboratory to analyze in continuous the yield extraction results in soxhlet and NIR.

For more information on the Phenoils project, in which 3 new extraction techniques are being studied for improving the natural antioxidant content of extra virgin olive oils, you can consult the website.

<https://www.eitfood.eu/entrepreneurship/projects/PHENOILS/>.

### **SCOPE OF WORK**

The tasks of the facilitator include:

- To can make the trials for 2 days under stable conditions
- To analyze in continuous the yield extraction results in soxhlet and NIR
- To let technicians of EPS to be present in the trials
- With respect to the chemical characterization, small quantities of the produced virgin olive oil obtained with the different trials should be provided to EPS to make all the quality analyses.

## SELECCION CRITERIA

- Olive oil producer
- Location. Portuguese
- Producer of arbequina EVOO
- Capacity of 8 tn/day
- More than 2 lines of molturation
- R&D team to give support to the trials
- Laboratory to analyze in continuous the yield extraction results in soxhlet and NIR.

## TIMELINE

The trial must be carried out from October 1, 2021 to November 15, 2021. The company EPS would be responsible for the completion of all tests during the entire time of the same, which is estimated to be 2 days, with the sampling of the EVOOs and production control of both processes. On the part of the industrial mill, only the arrangement of the installations and the olive to be processed will be required, being the EPS company the responsible for the installation and uninstallation of the Pulse Electric fields equipment to be tested.

## BUDGET

The industrial test, which will be entirely free, should be carried out by November 2021, during the development of the new oil campaign 2021-2022 and will count at all times with the technical support of the heads of the company EPS (EnergyPulse Systems), a company responsible for the development of technology.

## SELECCION PROCESS

The open call will be published from July 15, 2021 until September 15, 2021, after which the collaborating oil mill will be selected.

For more information on the Phenoils project, in which 3 new extraction techniques are being studied for improving the natural antioxidant content of extra virgin olive oils, you can consult the website <https://www.eitfood.eu/entrepreneurship/projects/PHENOILS/>.

For the accession of your mill to the realization of this industrial test, we appreciate you contacting the project consortium through one of these people:

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