

## 2. AIM OF WORK

There is a huge demand for herbal plants and extracts which can be used to improve human health and well-being. Several environmental triggers are able to regulate the phytochemical accumulation. In order to accurately assess the efficacy of botanical products, consistent materials are needed for clinical studies, as well as a guarantee of sustainable access to commercial volumes of those materials; an efficient and successful protocol for enhancing the accumulation and production of active principles using *in vitro* models to examine herbal species responses is required. In this proposal the effect of some elicitors on caffeic acid derivatives accumulation on *Echinacea purpurea* callus will be investigated through the production of sterile and consistent plant material as a pre-step of natural pharmaceuticals production

To achieve this aim, the study was conducted to fulfill the following:

1. Establishment of callus cultures from explants isolated from plant material.
2. Establishment of liquid cultures (suspension cultures) from static cultures.
3. Study of the influence of elicitors and precursor feeding on the accumulation of active principles in suspension cell cultures.
4. Evaluating the calli extracts from chemical and biological points of view and comparing it to that of the locally cultivated plant extracts.