

BIOMEDICAL TECHNOLOGIES

BIOLOGICALLY ACTIVE PROTEIN FROM SOYBEAN CAKE

Description

By the group of scientists from the Institute of Bioorganic Chemistry AS RU it has been isolated sp-2 protein from soybean cake which has shown high antineoplastic activity on a number of experimental tumor cultures (Sarcoma 108, Melanoma B-16, AKATOL and AKATON) in vivo and sporadic malignant neoplasm of a human (breast cancer and endometrium cancer) in vitro.

It has been shown, that:

- The sp-2 protein possesses low toxicity, no fatal cases among animals were observed at <10 g/kg doze of per os introduction, therapeutic doze of introduction of the sp-2 protein is 150 mg/kg per os and 12,5 mg/kg hypodermically;
- The sp-2 protein inhibits cancer tissue growth by more than 60%, and at joint treatment with 5-fluorouracil by more than 80%;
- Biological activity of the sp-2 protein on proliferation of KML mice melanoma cells in cytotoxic test using radiometric method on activation of ³H-thymidine shows label activation suppression by 58,5%;
- Treatment by sp-2 protein restores the expression of bcl-2 and p53 genes in a cancer tissue up to control level and restores an apoptosis induction, not rendering negative influence on highly proliferative normal tissues of an organism.

Innovative Aspects and Main Advantages

Sp-2 protein with molecular weight of 30 kDa has been isolated from soybean cake for the first time. It can be used in a form of tablets, injections and biologically active additives.

Main advantages includes:

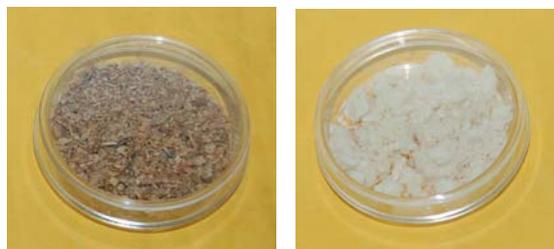
1. Usage of secondary raw materials;
2. Purified protein is different from those receiving out of soy milk and soy concentrate;
3. Usage of inexpensive reagents;
4. No multistage purification;
5. Ecologically clean technology;
6. Sp-2 protein does not require special storage conditions (15⁰C).

Output is 600 mg from 100 g of dry soybean cake.

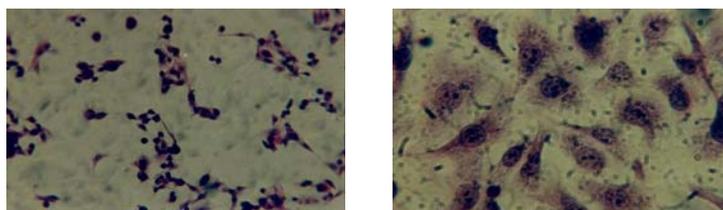
Area of Application

It can be used:

- At treatment of oncological diseases;
- A dietary nourishment of oncological patients;
- For increase of efficiency and reduction of toxicity at antineoplastic treatment.



1 2
Fig.1 Soybean cake (1),
sp-2 protein (2)



1 2
Fig. 2. Influence of sp-2 protein in a doze of 100 cg/kg
on KML mice melanoma cells:
Cytotoxic effect (isles of necrotic cells) (1); KML mice
melanoma cells (control) (2)

Stage of development

Laboratory research in vivo on Sarcoma 180, Melanoma B-16, AKATOL, AKATON cultures and in vitro on breast cancer and endometrium cancer has been carries out. Patenting documents are under preparation stage. Search for partners for further cooperation is continued.

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