

IRRADIATION AS AN ALTERNATIVE ENVIRONMENT FRIENDLY METHOD FOR MICROBIOLOGICAL DECONTAMINATION OF HERBAL RAW MATERIALS

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Microbiological contamination of herbals raw materials causes serious difficulties in the production of therapeutical preparations. A good quality of this materials, according to the pharmaceutical requirements may be achieved by different methods of decontamination.

Each of decontamination treatments should be:

a/ carried out safely and fast;

b/ effective against all microorganisms

c/ able to penetrate the packaging and product in order to act against all the microorganisms present;

d/ adaptable to large quantities of material with high efficiency

and

e/ must not reduce the sensory and technological qualities of the treated commodities.

In the paper, the results of comparative investigations on the microbiological decontamination herbal raw materials by chemical and physical methods are presented

Decontamination with ethylene oxide is very effective method. It gives bacteriostatic or bactericidal effect without substantial changes in biological active substances in raw herbals materials. However, a ethylene oxide is consider as a human carcinogen, and the use ethylene oxide for fumigation is prohibited in EU. In the near future, the same situation will be in Poland.

Decontamination by methyl bromide is not a process allowing to obtain the high microbiological purity of herbals raw materials. This process causes a decrease essential oil in particular fumigated materials. Because, the methyl bromide destroys the ozone layer at atmosphere, the total prohibition of the usage this compound will be introduced in the EU from 2005.

Radiation treatment the herbals raw materials at the doses up to 10 kGy effectively reduce to the acceptable level contamination this materials. Content of biological active substances in many herbals raw materials did not change in a significant degree after irradiation.

It seems, that radiation decontamination of herbals raw materials is a method by choice. It is a technically feasible, very effective and friendly to environment process. Radiation treatment can be applied to hermetically packed product, thereby excluding recontamination.