F.8. THREE-STEP STRATEGY FOR OBTAINING OF BIOLOGICALY ACTIVE SUBSTANCES AND FUNCTIONAL BIOPOLYMERS FROM OILSEED POMACES

ALEXEI BAERLE, IULIANA SANDU, ARTUR MACARI, OXANA RADU

Technical University of Moldova, Chisinau, Republic of Moldova

Abstract. The purpose of this work is to develop a universal and optimal strategy for the complete extraction of valuable compounds from oil cakes. Freshly squeezed oilseed cakes obtained from oilseeds (walnuts, flaxseed) after cold pressing, are the sources of valuable biologically active substances (BAS). Among these are polyphenols, naphthoquinones, carotenoids and biopolymers (cellulose, arabinoxylan) with pronounced functional properties BAS stability in oilcakes is low during pressing process, due to destruction of cell membranes. Reaction of cells and intercellular substance leads to an accelerated oxidation of the oilcake immediately after pressing. In order to avoid oxidation, we recommend removing these active substances, or at least preserving them in reasonable ways before cold pressing. The second stage should include the smart processing of the oilcake pomace, obtained by pressing. It shall include the extraction of hydrophilic and / or hydrophobic biologically active substances from the cake. Finally, the third stage is optimal to obtain the biopolymers and dietary fibers. We recommend isolation of these components, valuable for a healthy diet, in a dry powder form. Using this three-step approach, we improved technology of extraction of biologically active components from walnut kernels and of mucilaginous from flaxseeds.

Keywords: Walnuts (*Juglans Regia*), Flax (*Linum Usitatissimum*), BAS, naphtoquinones, arabinoxylan