Considerations on the utility of Digitalis lanata species for drug industry

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Digitalis lanata has a well-deserved place in drug industry.This interest dates back in 1785, when the effects of Digitalis lanata extracts were discovered and digoxin became part of the heart failure treatment.
The xx century saw this interest growing as the drug industry expanded. The leaves of Digitalis lanata - the source of cardiotonic glycosides - are used in the treatment of heart failure as drug products only. Digitalis leaves are rich in active principles (cardenolides or cardiotonic glycosides). Their chemical composition is complex besides the cardiac heterosydes being saponins and flavones, organic acids, lipids and glucids, tannins and mucilages. The digitalic biologicals (compositions) have a cardiotonic and diuretic action due to the glycosides from A group that increase the energy of cardiac contraction. The immediate effect is a much faster and complete heart drainage in the systole period, a better filling and reduction of the diastolic volume, a reduction of the venous pressure, and an increase of the mechanical efficiency of the myocardium. This fact allows the heart to fulfill its activity with minimum oxygen consumption. A further effect, due to the increase of the cardiac activity's efficiency is the increase of the urinary excretion. At present all the cardiotonic drugs are obtained industrially in our country only from the Digitalis lanata leaves. The results obtained with these species show that experimental mutagenesis can be an efficient method in obtaining some plants with superior bioproductive characteristics, insufficiently exploited in the amelioration activity of this type of plants. Nowadays mutagenesis is considered to be an indispensable way for obtaining some desired mutations and the mutations induction could be the unique alternative for the improvement of a character without affecting the rest of the genome. The intervention with mutagenic agents increases considerably the frequency of mutations appearance and if the number of mutations increases, the chance of some useful mutations identifications will be greater in amelioration. This work's objectives encompass the history of D. lanata, the current studies on its effects as well as its use in the perspective.