

## PROPOSALS ON TECHNOLOGY OF MOVING *Aristolochia clematitis* (BIRTHWORT) FROM THE SPONTANEOUS SYSTEM OF GROWTH IN THE CULTIVATED SYSTEM

Olimpia PANDIA<sup>1</sup>, Ion SĂRĂCIN<sup>1</sup>, Ion BOZGĂ<sup>2</sup>

<sup>1</sup>University of Craiova, Faculty of Agriculture of Horticulture, 13 Lyberty Str., Craiova, Romania

<sup>2</sup>University of Agronomic Sciences and Veterinary Medicine of Bucharest, 59 Mărăști Blvd.,  
District 1, 011464, Bucharest, Romania

Corresponding author email: ion\_saracin@yahoo.com

### Abstract

*Complex valorisation of the specie of *Aristolochia clematitis* resulted from the spontaneous flora in Oltenia area and in other regions of the country requires the elaboration of an ecological cultivation technology.*

*This technology is primarily aimed at keeping bio productive qualities (biomass content in active principles, qualitative physiochemical spectrum) of selected genotypes and their conservation.*

*New bio products will be made by a new modern ecological technology, with machinery and equipment appropriate for the culture of *Aristolochia clematitis* that aims at the observance of the conditions regarding the protection of environmental quality and providing raw materials for the pharmaceutical industry.*

*This technology aims primarily at preserving the bio-productive qualities (biomass, active principles content, qualitative phytochemical spectrum) of selected genotypes, as well as their preservation.*

*This paper presents the main links of the cultivated and protected test crop system of a plant known so far a *Aristolochia clematitis* weed, taken from spontaneous flora, works of preparing the soil and seedbed respectively, setting up culture, removing weed, harvesting in order to obtain extracts, harvested from seeds.*

**Key words:** crop system; extracts; pharmaceutical industry.

### INTRODUCTION

By using natural medication which has become more and more frequent, toxic side effects induced in the organism are removed. Since existing vegetal species are very well spread both spontaneously and in guided and protected crops, enabled discovering and using an impressive number of vegetal substances in traditional medicine, by obtaining qualitative influences to immune response, without requiring high costs, being easy to obtain and maintain, by controlling toxic effects of certain plants on the organism, which until recently was used in pharmacies under the name of REMF.

*Aristolochia clematitis* L. (Wolf apple) has a list of impressive cured disorders: from hepatic illnesses and recurrent infections to dermatomes resistant to any kind of treatment, benign and malign tumours or gynaecological illnesses (Natura Magazine no. 7, 2003).

Successful folk remedies started from reducing inflammations, external haemorrhoids, anal fissures, eczemas, ovarian cysts, uterine

fibroids, virginities, anal fissures, dermatoses, ulceration infections, wounds which are hard to heal, burns, mammal cysts, varicose ulcer, psoriasis. It is recognised as a good antiseptic, cicatrising, calming and anti-inflammatory. Beneficial effects are obtained by using young seeds, leaves, roots and stems in various proportions and different extracts (Balistreri et al., 1992) 'in order to identify distribution and concentration of active compounds'.

### MATERIALS AND METHODS

As a starting point, it was established the place where cultivated and protected crop system technology was tried, Grecești village, Dolj district, on an uncultivated land, with an argic cernoziom soil with spontaneous vegetation.

Preparing the soil: Dimensions of the parcel were determined - 100\*100 m<sup>2</sup>, surrounded by strips of land 6 m wide which will be processed through periodic disking and represents the protection area of neighbouring crops. The establishes area is cleaned by chopping vegetal residues and existing vegetation by using MTV

1.4 vegetal residues chopping machine by leaving the mince scattered on the surface of the soil on half of the established parcel. The other half is lightly raked 2-3 cm deep, vegetal residues are gathered and removed from the parcel.

Sowing: In order to set up crops on the surface with vegetal residues they are spread on the surface of the land where there are spread vegetal residues of a mixture formed of Aristolochia Clematises seeds and dry sand by using MIC-0,4, chemical fertiliser spreading Machine with spreading disk with blades oriented towards the negative angle and low speed, by using a quantity of 3.4 kg seeds mixed with dry sand for 5000 m<sup>2</sup>.

For the raked surface, we used the same quantity of seeds mixed with dry sand of 2.2 kg for 5000 m<sup>2</sup>, and sowing was carried out by using forage sowing equipment fitted with MSPFP-2.0 rollers. In this case, certain measurements were also made.

Attempts of the experimental model of the MSPFP-2.0 meadows forage sowing machine in order to sow Aristolochia Clematises seeds mixed with sand.

**The sowing equipment presented in figure 1** is formed of: a seed box with two compartments, a compartment for small seeds of perennial leguminous plants with distribution boxes with small fluted cylinders and a compartment for perennial gramineae seeds with distribution boxes with spurs cylinders; seeds shaker on the perennial gramineae seeds compartment; collecting funnels; funnel-tray spreading seeds on the surface of the soil and transmission from the anterior roller to the Northon type gearbox, to the shaking axis and the axes of seeds distributors. **The sowing equipment** is placed on the machine and spreads seeds in the space between the two rollers.



Figure 1. MSPFP-2.0 meadows forage sowing Machine

*These are the main technical characteristics of the machine:* 2 m working width; 0,5-2 cm working depth; 42 dm<sup>3</sup> capacity of the boxes for small seeds.

The minimum norm of seeds obtained was 4,4 kg/ha per uniformity of distribution of approximately 98%. Sowing depth between 0,5-1 cm.

Setting up crop: whenever needed, we carry out the mechanic setting of the protection area between *Aristolochia Clematitis* harvested surface and the neighbouring crops, by using disks harrows, cultivators and combiner.

*Aristolochia Clematitis* crop can also be set up by chemical weed control works until the plant has 5-6-true leaves, considering the fact that it is a sensitive plant to MCPB-Na, oxyfluorfen, clopyralid, chlorsulfuron, tribenuron methyl, metosulam, acid 2,4-D+dicamba, glyphosate, etc. (Chirilă et al., 2012), which leads to warning by making an inscription in the ground not to use such substances.

Weed chemical control is done by using Erbicidator Wirax 200 l Sprayer, worn, equipped with anti-drip nozzles 6m working width.

Harvesting: It is carried out according to the proposed objective:

In order to obtain natural products – plants are cut by mowing during the period of blooming with the help of lawn mowers and vindrover.

Plants are left in furrows for 1-2 days in order to wilt, then they are transported to shady areas in order to dry naturally on cloth frames. After drying, frames can be emptied in special boxes

of depositing or they can be soaked directly and packaged for preservation.

- In besides harvesting, with the help of technology we establish that crop should be reset up naturally by auto seed spreading, taking into account that when ripen, capsules containing the seeds expand, then we will determine the medium distance of spreading and establish the width of the strip of plants which will be cut off, staking out rows which are to be left for self sowing.

- If the crop is set up in order to harvest seeds, the ripening period will be followed, as crops are close to the maturity phase at approximately 85%; plant capsules depend on phases.

First phase is represented by cutting plants and leaving them on the ground in furrows to dry, second phase consists of lifting plant furrows and threshed by combines, or stationary with threshers for experimental fields.

Note that during harvesting, it is recommended to use protection equipment which consists of gloves, protection glasses, respiratory protective mask.

It is recommended that during manual sowing on small field surfaces K2 group sowing machines be used, when sowing is done with the help of a distribution device vertical rotating disk type with spoons/cups, which change according to seed type and dimension.

The level of the seeds in the tank must be constant, so that seeds could be dosed by means of the spoons with every rotation, so that seeds should not be mistakenly thrown in the funnel or rod.



Figure 2. Small seed sowing machine in one row with mechanical distribution

Depth is adjusted between 0-7 cm with the help of the plough, and the channel is achieved by means of a wedge-type coulters, which, when appropriate, an additional weight can also be mounted.

## CONCLUSIONS

Crop can also be set up on poor lands, in the first year of sowing, and in the following years by natural spreading.

Crop must be located so that seeds cannot be transmitted to other crops. It is recommended that after sowing, to produce a light subsidence or watering in order to fix the seeds in the soil.

Crop can be maintained either mechanically or chemically.

Harvesting: Since natural products are achieved in phases followed by shade drying, cutting, grinding and packaging the product.

Harvesting to obtain seeds is achieved in phases by cutting while leaving in the furrow until dry, followed by threshing by using the furrow combine or stationary by using the thresher for experimental field.

During the actions comprised in technology, protective equipment must be used.

## REFERENCES

- Grollman Arthur P. et al., 2007. 'Acidul aristolohic și Etiologia endemice (Balcani) Nefropatia', Proceedings of Academia Nationala de Stiinte, 104, p. 12129 -12134.
- De Broe ME.2. De Broe ME. Chinese herbs nephropathy and Balkan endemic nephropathy: toward a single entity, aristolochic acid nephropathy. *Chineză ierburi nefropatia endemică balcanică și nefropatie: spre o singură entitate, nefropatia acidul aristolohic. Kidney Int. Rinichi Int.* 2012 Mar; 81(6):513-5. 2012 Mar; 81 (6): 513-5. doi: 10.1038/ki.2011.428. Doi: 10.1038/ki.2011.428.
- Balistreri W.F., A-Kader H.H., Setchell K.D.R., Gremse D., Ryckman F.C., Schroeder T.J., 1992. *Annals of Clin. Lab. Sci.*, 22, p.162-174.