Chemistry of Natural Compounds, Vol. 33, No. 1, 1997

PRODUCTION OF A POWDERED ROSLIN PREPARATION

Kh. A. Abduazimov, A. A. Pulatov, and A. M. Khvan

UDC 634.0864.2.631

At the present time the preparation Roslin, recommended for agriculture as a growth stimulator and fungicide, is supplied in the form of a 10% solution. The presowing treatment of the seeds of agricultural crops with the preparation provides the possibility of obtaining yield increases of 200-240 kg/ha for raw cotton, 300-600 kg/ha for grain, and 300-500 kg/ha for rice [1-3]. However the production of the material in the form of a solution requires the availability of a fairly large number of tanks and is associated with definite difficulties in its transport.

We have worked on the production of the material in the form of a dry powder. For this, we have tried out two methods: freeze-drying and spray-drying.

Freeze-drying was conducted on a model YZ-45, and spray-drying on an Angidro dryer at an inlet temperature of 90-93°C. The solution was fed into the chamber by means of a spray-disk and with the aid of an atomizer nozzle. The speed of the disk was 15-20 rpm, and in the feed of the solution through the atomizer nozzle the air pressure was 0.8-1 atm. The same yield of preparation was obtained in the two cases.

The physicochemical properties of the Roslin powder obtained by freeze-drying and by spray-drying did not differ appreciably. Both powders were dark brown and dissolved well in water. The elementary composition of the powders was: C 48.83; H 5.16; N 8.36; OCH 2.01.

The IR spectra of the Roslin powders obtained by the two methods were identical, having absorption bands at (cm^{-1}) 3200 (hydroxy groups bound by hydrogen bonds), 1600 (aromatic nuclei), 1690 (−CO−NH), 2850 (OCH_3), 1350 (−C−NO), and 1190-1300 (asymmetric vibrations of ether and ester bonds). The molecular masses of the powders obtained, determined by ultracentrifugation, differed somewhat. Thus, the molecular mass of the preparation after freeze-drying was 55,000 and after spray-drying 71,000. It is likely that partial condensation of the lignin — one of the components of Roslin — took place at the the high temperature in the spray-dryer.

Thus the preparation Roslin has been obtained in the form of a dry powder.

REFERENCES

1. A. Umarov, A. Kariev, et al., Uzb. Biol. Zh., No. 5, 66 (1991).
2. A. Kariev, A. Umarov, et al., Uzb. Biol. Zh., No. 6, 13 (1993).
3. B. Mamatov, E. I. Bessonova, et al., in: Abstracts of Lectures by Young Scientists of the Institute of the Chemistry of Plant Substances, Academy of Sciences of the Republic of Uzbekistan [in Russian], Tashkent (1993), pp. 63, 66.

Institute of the Chemistry of Plant Substances, Academy of Sciences of the Republic of Uzbekistan, Tashkent, fax (3712) 40 64 75. Translated from Khimiya Prirodnykh Soedinenii, Vol. 33, No. 1, pp. 126-127, January-February, 1997. Original article submitted April 8, 1996.

0009-3130/97/3301-0100$18.00