

## Hydroxyalates of $\gamma$ -aminopropylsilanes as potential growth regulators of plants

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Hydroxyalates of  $\gamma$ -aminopropylsilanes have growth-regulating activity and show a stimulating effect on the morphophysiological parameters of growth and development of wheat (*Triticum aestivum* L.), radish (*Raphanus sativus* L.), lupine (*Lupinus angustifolius* L.), peas (*Pisum sativum* L.), watercress (*Lepidium sativum* L.). Hydroxyalates of  $\gamma$ -aminopropylsilanes were obtained by reaction of equimolar amounts of  $\gamma$ -aminopropylsilanes with oxalic acid in an organic solvent. The corresponding  $\gamma$ -aminopropylsilanes were obtained by a hydrosilylation reaction catalyzed by  $\text{H}_2\text{PtCl}_6$ . Hydrosilylation of allyl amines was carried out by heating reagents without a solvent both at atmospheric and at high pressure in sealed glass ampoules. Several variants of the reaction were used: heating the reaction mixtures at the temperature of 180 °C during 6 days for 4 hours daily; heating the reaction mixtures in glass ampoules at the temperature of 120 °C (1 hour), 140 °C (1 hour), 160 °C (1 hour), 180 °C (12 hours); heating the reaction mixtures at atmospheric pressure and the temperature of 170 °C during 4 days for 1 hour daily. In all cases, the hydrosilylation products were mainly the products of addition according to the Farmer's rule (Figure):

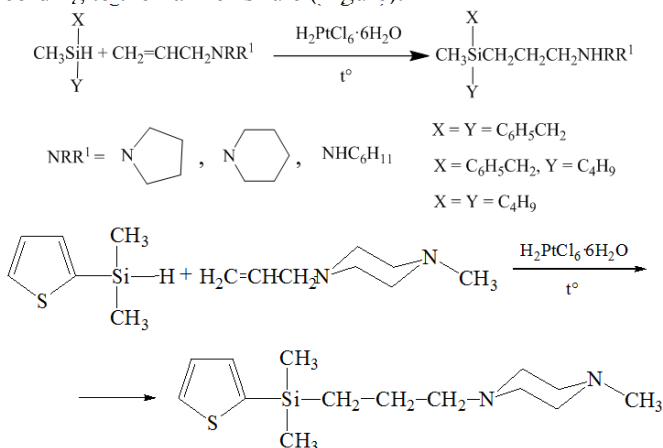


Fig. Hydrosilylation of allyl amines by hydrosilanes