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а в последнее время — многообещающее, сотрудничество с некоторыми селекционерскими и семеноводческими станциями. Это содействует также подготовке новых кадров, главным образом в руководстве дипломатиче-скими работами с вирусологической тематикой слушателей естественного факультета универ-ситета им. Коменского, Братислава, и т. п.

Проблематика вирусов типа желтух, передаваемых цикадами, изучалась и продолжает изучаться во многих лабораториях ЧССР. Так как в последнее время частичные темы и задачи, решаемые в отдельных учреждениях, в значи-тельной степени определились и обособились, Отделение растительных ви-русов Вирусологического института ЧСАН, не прерывая с ними контакта, не-посредственно с ними не сотрудничает. Это, главным образом: Фитопатологи-ческое отделение Биологического института ЧСАН, Прага, Исследовательский институт растительной продукции ЧСАСХН, Прага-Рузьишь, Лаборатория за-щиты растений, ЧСАСХН, Иванова на Дунае.

Department of plant viruses

Research on plant viruses has been started since the foundation of the Institute of Virology, at first in a separate laboratory. The laboratory grew gradually and gave rise to an independent department of plant viruses, which has now 10 workers under the leadership of Dr. V. Valenta.

Systematic experimental work could be fully developed only after the construc- tion of suitable greenhouses in 1956.

After a short transitional period, the department concentrated its attention on the investigation of the stolbur virus and related leafhopper-transmitted viruses, the complex of problems being at present defined as the biology of yellows-type plant viruses.

On account of practical requirements and the impossibility of carrying out systematic experimental work in greenhouses, the majority of research was done during the first years in the field. Above all, the distribution of yellows-type diseases in Slovakia was studied, mainly symptomatologically, on various wild and cultivated plants, along with the epiphytociology of stolbur which was treated from the point of view of Pavlovskii's teaching about the natural-focus character of the transmissible infections (1, 2, 7, 8, 9, 23, 25). It was found in agreement with the results obtained in other laboratories that yellows-type diseases occur practically all over Slovakia.

Parallely with investigating the incidence of disease in plants a survey of the distribution of vectors was carried out, at first mainly of the leafhopper *Hyaloschista*

obsolentis Sign. Its biology and morphology of developmental instars with reference to the possibility of a chemical control of stolbur was also studied (1, 6, 14). However, it became evident very soon that this species cannot be responsible for the occurrence of yellows all over the area under examination and therefore attention was gradually turned to the entire leafhopper fauna occurring in natural foci of yellows-type diseases (4, 5, 15, 17, 18, 26, 28). Some leafhopper species were examined for their ability to transmit yellows-type viruses. It was possible to confirm earlier data on the ability of the leafhopper *H. obsolentis* to transmit the stolbur virus (10, 11) and to define more exactly the relationship to the yellows-type viruses occurring in Czechoslovakia of the species *Aphrodes bicinctus*, *Macrostelus laevis* and *Euscelis plebejus*, meanwhile reported as vectors of yellows-type viruses elsewhere in Europe. It was found that these leafhoppers are capable of transmitting both the stolbur and clover phyllody viruses (19, 27).

Field observations have been verified in the laboratory. Main attention was paid to the exact diagnosis of etiological agents of yellows-type diseases occurring in Czechoslovakia with respect to their differentiation. At the same time, the problem of host range of the viruses found was dealt with. The results obtained so far can be summarized in that the following viruses occur in the area under investigation: the stolbur virus in a whole range of strains of various virulence (3, 10, 11, 13, 22, 27, 32); the newly described metastolbur and parastolbur viruses (33); the clover phyllody virus; and the potato witches' broom virus in three somewhat different types (9, 21, 24).

In the course of searching for differentiation criteria for the individual viruses also the problem of their thermal inactivation *in vivo* was studied (31). Also in connection with the solution of the problem of differential diagnostics of yellows-type viruses, a rather extensive collection of these viruses has been established in the department. Several tens of strains of different viruses are represented there, above all from Czechoslovakia, but also from the U.S.S.R., Rumania, Bulgaria, Austria, German Federal Republic, Holland and Canada, so that it represents probably the most complete collection of yellows-type viruses in Europe. While investigating this material, one of the viruses obtained from the Soviet Union was recognized as new and described as the Crimean yellows virus (20).

The possibility of comparing viruses of different origin incited research on the hitherto controversial problem of their mutual relationship on the basis of mutual interference between these viruses (29, 30). The results obtained led to the hypothesis of a gradient of mutual interaction between yellows viruses which could reflect their mutual relationship (30).

Among the further problems concerning yellows viruses, anatomical and biochemical changes in plants infected with the stolbur and Czechoslovak potato witches' broom viruses have been investigated; known data of the literature have been confirmed and new results on the effect of these infections on root formation obtained. (34).

In addition to the yellows viruses also other viruses were investigated, especially during the first period of existence of the department, such as the tobacco necrosis (12, 16), common cucumber and tobacco mosaic viruses, as well as the *Cucumber virus 2* and *3*, which were used as models for the development of some methods and simultaneously served as material for other laboratories of the institute (physico-chemical and electron microscopy, which see).

In future, the department of plant viruses expects to proceed with the research on yellows-type viruses with a main emphasis on the basic properties of these viruses, which are still known very little and on investigating more precisely the pathogenesis of yellows-type infections as well as the virus-vector relationships.

As far as the contact with practice is concerned, the department has cooperated recently with promising results with several breeding and seed-selecting stations. It also assists in the training of new workers, especially by advising in dissertations on virological problems, prepared at the Faculty of Natural Sciences of the Komenský University in Bratislava etc.

The complex of yellows-type, leafhopper-borne viruses has been dealt with in several Czechoslovak institutions. As the partial assignments solved at these individual laboratories have been rather narrowed recently, the department of plant viruses of the Institute of Virology does not cooperate directly with these institutions but is in contact with them. The following laboratories should be mentioned at this point:

Department of phytopathology, Institute of Biology of the Czechoslovak Academy of Sciences in Prague (which see); Research Institute for Plant Production of the Czechoslovak Academy of Agricultural Sciences in Prague-Ruzyně; Laboratory for plant protection of the Slovak branch of the Czechoslovak Academy of Agricultural Sciences in Ivánka-On-Danube.

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