Comments and Communications

Anti-Rh Pseudoagglutinins in IV-6 Human Plasma Fraction

In a recent article (*Science*, May 28, pp. 571–572) some hematologic effects from the infusion of IV-6 human plasma fraction were described. We have since encountered anti-Rh pseudoagglutinins in samples of this fraction prepared from a plasma pool of 400 presumably normal donors. The concentration of anti-Rh factor in these samples was sufficiently high to render them utilizable as Rh testing antiserums.

Although passive sensitization by Rh pseudoagglutinin in postnatal life has never been reported to our knowledge and although we have not observed such sensitization by the administration of solutions of IV-6 fraction, we nevertheless suggest that anyone contemplating the administration of this fraction test it beforehand for the presence of anti-Rh pseudoagglutinins. Should these prove to be present, it would seem advisable to remove such pseudoagglutinins prior to administration.

Anti-Rh pseudoagglutinin may be readily removed from human plasma fractions by the addition of successive portions of Rh-positive erythrocytes and the removal of the clumped masses of the latter by centrifugation.

We have found a similar blocking type anti-Rh pseudoagglutinin in glycoprotein fractions from hog parotid and hog stomach extracts.

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Recent Developments in Weed Control

This article describes a method employed in Hawaiian weed control to supplement the desirable herbicidal effect of 2,4-D and to tame or reduce the injurious effect of this hormone upon sugar cane.

Depending upon pH, physical characteristics, and concentration of organic matter, Hawaiian soils react differently to normal pre-emergence applications of 2,4-D. In a number of middle-belt soils—pH range, 6.5–7.5—an application of 2,4-D at 2½ lbs/acre of soil surface will penetrate downward 3″ or more without its suffering immediate fixation or decomposition. In such cases the hormone may reach the recently planted cane seedpieces, 3″ below the soil surface, in amounts sufficient to repress or prevent their germination, or it may abort or distort root development and growth of cane shoots.

In other soils—pH, 6.0–7.0—of the heavy adobe type, as much as 25 lbs/acre of 2,4-D may be applied under similar circumstances with no observable detrimental effects whatsoever. In the first case cited, 2½ lbs of 2,4-D/acre may be found too light an application as a satisfactory inhibitor of weed and grass seed germination and growth of tender weed seedlings.

It has been found in such cases that the application of 2,4-D may be reduced to a concentration not harmful to germinating cane—say 2 lbs/acre—and the full pre-emergence herbicide effect on the field may be sustained three months or longer *provided* its action is supplemented by including with it about 5 times its weight of H.S.P.A. Activator (pentachlorophenol, or sodium pentachlorophenate—U. S. Patent No. 2,370,349).

The activator does not injure the planted seedpiece or in any other manner adversely affect the growth and development of the crop as far as we have been able to detect. As a matter of fact, H.S.P.A. Activator alone, applied at 40 lbs/acre in pre-emergence, has been found entirely satisfactory for the purpose, although rather costly.

In a proposal which was made at the annual meeting of the Hawaiian Sugar Technologists in November 1947, it was suggested that it may be possible to discourage the downward movement of soluble 2,4-D in the soil by applying it in oil solution. A herbicide formula, based upon the amendments to 2,4-D discussed above and previously studied in the laboratory, was submitted in Honolulu to the assembled technologists at their meeting previously noted. The formula follows:

2,4-DAC[1]

66	lbs of aromatic by-product petroleum oil[2]
10	" " oil-soluble H.S.P.A. Activator[3]
2½	" " isopropyl ester of 2,4-D
2	" " oil-soluble emulsifying agent[4]
80½	lbs (about 10 gals)

The activator is dissolved in the oil by the application of gentle heat. The ester is then added, followed by the emulsifying agent. Add the 10 gals of 2,4-DAC, with moderate stirring, to 90 gals of water, the latter containing .5% by weight of a conditioner[5] consisting of an alkyl aryl sulphonate. This produces an excellent emulsion which remains stable for hours.

The 100 gals of diluted emulsion thus produced may be applied in pre-emergence to one acre of bare soil by ordinary spraying equipment. This art is currently in vogue as exclusive plantation practice on one sugar plantation on the Island of Hawaii.

Where modern spray nozzles are employed, the 10 gals of concentrated 2,4-DAC may be applied directly, without further dilution, or any convenient volume of water may be used to dilute the concentrate if so preferred.

[1] Indicating a combination of 2,4-D and oil-soluble H.S.P.A. Activator.

[2] Any highly aromatic, low-density, by-product oil, such as Union Oil Company's 4060-0, General Petroleum Company's 1408, Magnolia Petroleum Company's Sovacide 544-C, Pan American Refining Company's A-383, etc.

[3] Pentachlorophenol.

[4] Any suitable emulsifier of the alkylated aryl polyether alcohol group.

[5] Santomerse 3, or 2-7-R Wetting Agent.

This formula, diluted with water, has been found particularly efficacious when employed as a pre-emergence *and* as a contact application on areas where planned treatment has inadvertently been postponed. We may assume that the postponement allows weed and grass growth to reach a height of about 1″. In such cases a somewhat heavier application in slightly increased volume generally results in a very satisfactory control. The duration of effect may, and usually does, exceed a continuous period of three months.

Where 2,4-DAC is to be applied without dilution, it is not necessary, of course, to include the emulsifying agent in the formula.

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The American-Soviet Science Society

As officers and former officers of the American-Soviet Science Society, we should like to make a statement concerning the way in which the work of the Society was brought to an end by the failure of the U. S. Treasury to grant us a tax exemption certificate as a nonprofit educational organization.

The Society, which was formed in 1945 as the successor to the Science Committee of the National Council of American-Soviet Friendship, has notified its members that it is unable at present to carry on its normal activities. It had been engaged in facilitating relations between scientists in the U.S.A. and U.S.S.R. through the publication of scientific articles by Russian authors in American journals, the circulation in the United States of scientific books, journals, and reprints from the U.S.S.R., and particularly by acquainting American scientists, through its "Bulletin," with scientific work published or in progress in the Soviet Union.

When the Society became an independent organization in May 1946 by severance of relations with the National Council of American-Soviet Friendship, it was realized that the small dues and contributions it was able to obtain would not suffice to support the extensive administrative and editorial work which had increased greatly since 1943 or to convert the "Bulletin" into the full-fledged *American Review of Soviet Science* which had been planned. Consequently, a grant for the support of this work of international exchange and publication was obtained from the Rockefeller Foundation in June 1946. It was known at the time that this grant could be paid only when the Society should be in possession of a tax-exemption certification from the U. S. Treasury; and it was assumed that since the Science Committee had enjoyed such status, it would be granted to the Society as a matter of course, following its application in June 1946.

In making such an assumption the officers failed to reckon with the obstructive tactics by which for two years the Treasury Department has failed to act upon our application. The only reason given is contained in a letter from Mr. E. I. McLarney, Deputy Commissioner of Internal Revenue, dated April 28, 1947, who stated: "It appears from newspaper articles recently published that the Committee on Un-American Activities of the House of Representatives proposes to investigate the matter of whether your activities and those of certain of your leaders are detrimental to the interests of the United States. Under these circumstances a definite ruling on your status for Federal income tax purposes is being deferred pending further development of facts."

The "newspaper articles" were those concerned with the campaign waged by the Un-American Activities ("Thomas") Committee of the House against Dr. Edward U. Condon, director of the Bureau of Standards, who had been a member of the Executive Committee of the American-Soviet Science Society. The Society has never been on the so-called "subversive list" of the Attorney General, and no grounds whatever exist for any suspicion concerning the motives or actions of its officers in connection with American-Soviet scientific exchange. In common with other organizations striving to improve American-Soviet relations, its work has been hampered by the atmosphere of suspicion created by the Thomas Committee, which, in the absence of any inquiry, has by insinuation alone sufficiently influenced a department of the Government to prevent our receiving the material support needed for our work. This has taken place in spite of the approval given to the Society's scientific exchange service by American scientists, by libraries, by many government bureaus and departments which have used our service, by the Rockefeller Foundation, and by the State of New York, under whose laws the Society is incorporated as an educational organization. It is a sad commentary on the administration of a government department that it prefers unsubstantiated insinuations to these solid evidences of the scientific standing of the Society and its value to American science.

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On the Number of Genes in Man

Reliable determination of the number of separate gene loci has not been made for any organism. For experimental forms, especially *Drosophila*, rough approximations are established (e.g. J. W. Gowen and E. H. Gay. *Genetics*, 1933, 18, 1–31; D. E. Lea. *J. Genetics*, 1940, 39, 181–188; H. J. Muller. *Proc. int. Congr. plant Sci.*, 1929, 1, 897–921). Although ideally controlled experimental results are not available, considerable theoretical interest attaches to the problem of gene number in man. For instance, the tempo of human evolution is, among other things, a function of the number of gene loci susceptible to mutation (S. Wright. *Bull. Amer. math. Soc.*, 1942, 48, 223–246). Another source of interest is that an estimate of gene number in man illustrates the