Apricots and Plums as Hosts of Western X-Disease[1]

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Stoddard (*3*) reported that peach, *Prunus persica* Batch., nectarine, *P. persica* var. *nucipersica* Schneid., and chokecherry, *P. virginiana* L., are natural carriers of the X-disease in eastern United States. He was able to transmit the disease by budding to the sand cherry, *P. besseyi* Bailey, Chinese bush cherry, *P. japonica* Thung., wild goose plum, *P. hortulana* Bailey, and almond, *P. communis* Arcang. He considered the wild black cherry, *P. serotina* Ehrh., and the beach plum, *P. maritima* Marsh, immune and reported no evident symptoms following inoculation into wild plum, *P. americana* Marsh. Palmiter and Parker (*2*) found diseased sour cherries, *P. cerasus* L., close to peaches and chokecherries affected with X-disease. They reported that "inoculations from affected sour cherries to peach resulted in typical peach-disease symptoms." Bodine (*1*) reported an estimated 100 peach trees infected with "western X virus disease" in western Colorado in 1944, and that no chokecherries were found in the immediate vicinity of the peach growing section. His survey of the nearest area where chokecherries were found revealed only healthy plants.

TABLE 1

RESULTS OF INOCULATION OF ELBERTA PEACH TREES WITH BUDS FROM PREVIOUSLY INOCULATED APRICOT AND PLUM TREES

Source of inoculum	No. of peach trees inoculated	Healthy	Diseased	
Apricots				
Jones	4	1	3	
Early Horn (1)	5	1	4	
Early Horn (2)	5	4	1	
Reece (local seedling variety)	4	4	0	
Plums				
Big Mack (1)	5	3	2	
Big Mack (2)	5	0	4	(1 winter killed)
Duarte-Satsuma hybrid (1)	5	3	2	
Duarte-Satsuma hybrid (2)	5	2	3	
Climax	5	4	0	(1 winter killed)
Red Late Hardy	4	4	0	
Omaha	5	5	0	
Hungarian prune	5	5	0	

Since X-disease is still present and spreading in Colorado peach trees and the situation remains unchanged as to the proximity of chokecherry trees to the peach area, other possible hosts of the X-disease were thought to exist. To test this hypothesis, buds were taken in the summer of 1946 from peach trees having the western X-disease and placed into nursery trees of several varieties of apricots growing on apricot seedling root stock and also into plums growing on peach root stock. In 1947, buds were taken from these 1946–inoculated trees and placed into small Elberta peach trees. Western X-disease symptoms expressed in the peach in 1948 showed that two varieties of each of the inoculated apricot and plum were carrying the western X-disease virus and none of the 40 uninoculated check trees was affected.

The results in Table 1 show that the Jones and Early Horn varieties of apricot and the Big Mack and Duarte-Satsuma plum can carry the western X-disease virus. All previously inoculated apricot and plum trees were reinoculated from peach in 1947 and the Climax plum now shows a premature yellowing and bronzing of leaves which suggest its possible infection. Inoculations from this tree, as well as other trees from which transmission was not obtained in 1947, were again made on Elberta peach in 1948. Symptoms found in other hosts require further study and will be reported later.

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Aureomycin, a New Antibiotic[1]

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A new antibiotic principle active against certain viruses and rickettsia (*6*) and against both Gram-positive and Gram-negative microorganisms (*1, 2, 5*) has been isolated from the substrate of *Streptomyces aureofaciens* (*4*). The antibiotic has been named aureomycin from the yellow color of the parent actinomycete and the golden color of the crystalline antibiotic.

Aureomycin is a weakly basic compound which contains both nitrogen and nonionic chlorine. Aureomycin when treated with alcoholic ferric chloride gives a greenish-brown color by reflected light and reddish color by transmitted light. The crystalline free base has the following properties: m.p., 168–169° C (uncorr.); $[\alpha]_D^{23°}$, −275.0 (methanol); solubility in water, 0.5–0.6 mg/ml at 25° C; very soluble in the Cellosolves, dioxane, and Carbitol; slightly soluble in methanol, ethanol, butanol, acetone, ethyl acetate, and benzene; insoluble in ether and petroleum ether; very soluble in aqueous solution above pH

[1] This work was initiated and directed by the late Dr. Y. SubbaRow, and by Dr. J. H. Williams.

8.5; analysis: C, 54.56; H, 5.34; N, 5.77; Cl, 7.16; O, 21.17 (by diff.); mol. wt., 508 (*3*).

Aureomycin forms a hydrochloride with these properties: decomposes above 210° C; $[\alpha]_D^{23°}$, −240.0 (water); approx. solubility in water, 14 mg/ml at 25° C; pH of aqueous solution, 2.8–2.9; analysis: C, 51.84; H, 5.24; N, 5.46; total Cl, 13.27; ionic Cl, 6.69; O, 24.19 (by diff.). The rhomboid crystals have a refractive index of 1.700 ± 0.005. The acute angle is $80 \pm 5°$.[2]

In 0.1 N hydrochloric acid, aureomycin shows absorption maxima at 230, 262.5, and 367.5 mμ. In 0.1 N sodium hydroxide the maxima are at 255, 285, and 345 mμ.

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2-Acetylamino-9-C^{14}-Fluorene[1]

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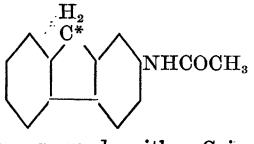
Since it was demonstrated by Wilson, DeEds and Cox (*4*) that 2-acetylaminofluorene causes a wide variety of cancer in rats, this compound has become of increasing importance in experimental cancer research (*1–4*). Present chemical methods are successful in accounting for only about one-third of the substance administered (*3*). With the hope of completely elucidating the mode of action of 2-acetylaminofluorene we have synthesized it with radioactive carbon-14 in the 9-position in the molecule.



Measurements were made with a Geiger tube having a window 4–5 mg/cm² and at a distance of $1\frac{1}{8}$".

The following equations give the yields and number of counts per minute at each step for a 22 mg/cm² sample from 2 mc of $BaC^{14}O_3$ and 11.5 gm of 2-iodobiphenyl.

$$\text{2-iodobiphenyl} \xrightarrow{87\%} \text{2-biphenylmagnesium iodide} \xrightarrow[C^{14}O_2]{60\%}$$

$$\text{20,897 cpm 2-}C^{14}\text{-biphenylcarboxylic acid} \xrightarrow{88\%} \text{24,872 cpm 9-}C^{14}\text{-fluorenone} \xrightarrow{70\%}$$

$$\text{23,630 cpm 9-}C^{14}\text{-fluorene} \xrightarrow{79\%} \text{20,969 cpm 2-nitro-9-}C^{14}\text{-fluorene} \xrightarrow{90\%}$$

$$\text{24,832 cpm 2-amino-9-}C^{14}\text{-fluorene} \xrightarrow{84\%} \text{21,341 cpm 2-acetylamino-9-}C^{14}\text{-fluorene}$$

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[2] We wish to thank E. F. Williams, of the Stamford Laboratories, American Cyanamid Company, for the crystal analysis, and L. M. Brancone and staff for the microanalyses.

The metabolism of the radioactive compound is being studied by H. P. Morris, of the National Cancer Institute, and the results will be reported in a subsequent publication.

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Experiments in Crossing *Aedes (Stegomyia) aegypti* Linnaeus and *Aedes (Stegomyia) albopictus* Skuse[1]

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In 1937, Toumanoff (*4*) reported a series of crosses made between the two species of mosquitoes, *Aedes aegypti* and *Aedes albopictus*. In two trials he had two successful crosses of albopictus females and aegypti males. The offspring resembled albopictus. The F_2, F_3, and F_4 generations from these crosses also resembled albopictus. In four trials with aegypti females and albopictus males he had only one success, the offspring and F_2 generation resembling aegypti. Later (*5*) he reported five more crosses of albopictus females and aegypti males, two of which were successful, the F_1 again resembling the female parent. Hoang-Tich-Try (*2*) also reported four attempts at crossing albopictus females and aegypti males; two of the trials were successful, the F_1 resembling albopictus. He did not succeed in getting an F_2 generation. Edwards (*1*) comments on this work, suggesting the desirability of more detailed morphological studies of the crosses.

In 1944, Johannes Bauer tried to confirm this work, using colonies of *A. aegypti* and *A. albopictus* which had been maintained in the New York Laboratories of the International Health Division of The Rockefeller Foundation for several years. The origin of these colonies is not known. It was considered possible that, in the course of innumerable transfers of eggs and larvae, some mixing of the two species might well have occurred from time to time. Evidence of this was obtained, for upon examination of a large number of specimens from the cage of either colony, an occasional member of the other species would be found. Consequently, it can be suggested that neither of the lines was necessarily "pure." After preliminary trials, Dr. Bauer turned the project over to the

[1] Work conducted under the auspices of U. S. Naval Medical Research Unit No. 2 in the Laboratories of the International Health Division of The Rockefeller Foundation, New York. The Navy Department does not necessarily endorse the views set forth in this paper.

[2] The authors were formerly with NAMRU No. 2.