lating fermentation in the presence of thiamin, may increase the carbon dioxide production 10 per cent. If deficient yeast (grown on a medium which is nearly synthetic in character) is used, the effect of pantothenic acid on fermentation (without growth) is even much greater than that of thiamin. Under these conditions, which are admittedly not those prescribed by the authors of the test, β-alanine and ethanolamine also have definite stimulative effects.

Stimulation of yeast fermentation by liver extract (Lilly's 343) is vastly greater under the conditions prescribed than can be obtained by any amount of added thiamin. Under these conditions growth accompanies the fermentation. If conditions which permit growth are carefully avoided, this difficulty is minimized.

On the basis of further developments and recent work by the originators we are now more favorably inclined to the fermentation test for thiamin than formerly. Though subject to certain errors, we believe that as amended it may serve as a very useful tool.

ROGER J. WILLIAMS
ERNEST F. PRATT

OREGON STATE COLLEGE

THE INFLUENCE OF SOME DIGESTIVE FERMENTS ON THE EXPERIMENTAL CROWN-GALL

IN our experiments we tried to repeat some of the very interesting experiments described by Ark.[1] That author has found that digestive ferments such as pepsin, papain and some other organic compounds had a very marked influence on the plant tumors caused by *Pseudomonas tumefaciens.*

For these experiments we chose 30 different crown-galls on Pelargonium inoculated with *P. tumefaciens,* strain "Bela" from the Lister Institute in London. Eleven tumors were treated with papain and eleven with pepsin. Eight were kept as controls. These enzymes were applied in powdered form and were placed in long narrow incisions where small sections of tumors had been cut away. From all control tumors similar sections of tissue were taken away. Then the galls were wrapped in Cellophane.

Six out of eleven tumors treated with pepsin deteriorated, one month after treatment. Five were left without any or only slight injury. Out of eleven tumors treated with papain three died off and nine were left partly or entirely intact. From the eight control tumors four died off in the same time as treated ones.

Therefore, our findings are not in complete agreement with those of Ark. We came to the conclusion that the enzymes like papain and pepsin are not always effective in the treatment of crown-gall. In some cases at least the mechanical injury of crown-gall may effect a total necrosis of the tumors.

S. F. SNIESZKO
J. PALUCH

DEPARTMENT OF AGRICULTURAL MICROBIOLOGY,
JAGIELLONIAN UNIVERSITY,
KRAKÓW, POLAND

ALEPRIC AND ALEPRYLIC ACIDS, NEW HOMOLOGS OF CHAULMOOGRIC ACID

IN analyzing *Hydnocarpus wightiana* oil by the method described by us[1] the high optical activity and iodine numbers of the lower boiling fractions of ethyl esters indicated that there must be present at least one more optically active fatty acid besides those already known (chaulmoogric, hydnocarpic and gorlic[2] acids). By repeated vacuum fractional distillation of 100 liters of *H. wightiana* ethyl esters and fractional crystallization of the free acids we have finally succeeded in isolating two new homologs of chaulmoogric acid. There is still a third homolog present which we hope to obtain pure, but being a liquid acid, it is much more difficult to purify.

Because of their relationship to the therapy of leprosy we have named these two new acids alepric acid and aleprylic acid. Alepric acid is the next lower homolog to hydnocarpic acid, containing two carbon atoms and four hydrogen atoms less than the latter. The acid is solid at room temperature, melts sharply at 48° C. and has a high specific optical rotation (+77°). The melted acid, upon solidifying, forms characteristic, beautiful branching crystals rising high above the surface of the melt, similar to those already reported by us for pure chaulmoogric and hydnocarpic acids.[3]

Aleprylic acid is the next lower homolog to alepric acid, differing from it by C_2H_4. It crystallizes in the same characteristic manner as the other homologs. It melts sharply at 32° C. and has a very high specific optical rotation (+90°).

The bactericidal properties of these acids against *M. leprae* as compared with those of chaulmoogric, hydnocarpic and gorlic acids are now being determined.

The methods of separating these new acids with more detailed data concerning them and their ethyl esters will form the subject of a paper to be published elsewhere.

HOWARD I. COLE
HUMBERTO T. CARDOSO

INTERNATIONAL LEPROSY CENTER,
RIO DE JANEIRO, BRAZIL

[1] P. A. Ark, SCIENCE, 85: 364.

[1] H. I. Cole and H. T. Cardoso, *Jour. Am. Chem. Soc.,* 60: 614, 1938.
[2] *Ibid.,* 60: 612, 1938.
[3] *Ibid.,* 59: 963, 1937.