Warburg respirometer. All determinations were made in duplicate.

From Table 1 it is seen that the measured xanthine oxidase activity of rat liver is decreased approximately 50 per cent. when the protein in the animals' diet is reduced from 25 per cent. to 20 per cent. When the protein level is lowered to 10 per cent., the measurable xanthine oxidase activity is almost (if not completely) lost.

TABLE 1

EFFECT OF PROTEIN INGESTION ON LIVER XANTHINE OXIDASE ACTIVITY

Group	Number of determinations	Xanthine oxidase activity* Range	Average
Stock—25 per cent. protein	4	1,190–1,690	1,420
20 per cent. casein	4	675–918	745
10 per cent. soybean oil meal	4	0–168†	42
10 per cent. distillers' solubles	5	0–100†	20

* Xanthine oxidase activity is given in cu. mm of oxygen taken up in one hour (during the linear portion of the reaction—endogenous uptake subtracted) per gram of dry weight of tissue.

† In several instances the O_2 uptake for the endogenous sample was slightly greater than for the sample with added xanthine.

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E. B. MCQUARRIE
A. T. VENOSA

SCHENLEY RESEARCH INSTITUTE, INC.,
LAWRENCEBURG, IND.

THE INHIBITING EFFECT OF QUINONES ON THE GROWTH OF PENICILLIUM NOTATUM

IN the past few years different investigators have studied the inhibitory effect of certain substances on fungi,[1] both saprophytic and pathogenic. Special attention has been given to the inhibitory effect of antibiotic agents, as tyrothricin, pyocyanine and hemipyocyanine on pathogenic fungi.[2] The remarkable antibacterial action of quinones has attracted the attention of various authors.[3,4,5,6] These substances, especially vitamin K, have been suggested as a preventive agency against dental caries,[7,8,9] on account of their capacity to prevent the formation of acids in the buccal cavity.

While investigating the metabolism of *Penicillium notatum*, we became interested in studying the effects of certain quinones on the growth of this mold. The following quinones have been used: 2-methyl-1,4-naphthoquinone, hydroquinone and benzoquinone. We also included β-methylnaphthalene in view of its structural similarity to vitamin K.

The substances were added in the desired concentrations to the Czapek-Dox medium which was sterilized by the Seitz filter; the pH was 6.5. The flasks were inoculated with the strain of *P. notatum* 9178 and incubated at 25° C. Results are given in Table 1.

TABLE 1

THE INHIBITING EFFECT OF QUINONES ON THE GROWTH OF PENICILLIUM NOTATUM

	Chemical substances added (mg per 100 ml Czapek-Dox medium)					
	50	25	10	2.5	1.25	0.625
2-Methyl-1,4-naphthoquinone	0	0	0	0	0	1
Hydroquinone	0	0	0	0	1	3
Benzoquinone	0	0	0	1	2	3
β-Methylnaphthalene	2	3	3	3	3	3

0 = no growth; 1 = limited growth; 2 = regular growth; 3 = abundant growth.

In our experiments all the three quinones, even when highly diluted, revealed their capacity of inhibiting the growth of *P. notatum*. The synthetic vitamin K was more active than the other two quinones. Since hydroquinone and benzoquinone have no vitamin activity, our results also suggest that this inhibitory action is a quinone function independent of the capacity to act as vitamin.

β-methylnaphthalene, in spite of being structurally so similar to 2-methyl-1,4-naphthoquinone, had no inhibiting effect on the growth of the mold.

FELIPE GONZÁLEZ

DENTAL SCHOOL (UNIVERSITY OF CHILE)
SANTIAGO, CHILE

SCIENTIFIC APPARATUS AND LABORATORY METHODS

FILTRATION OF CITRATED PLASMA

IT has long been apparent that filtration is the only safe and effective method for the sterilization of citrated plasma. However, all previous work has shown that it is practically impossible to filter large amounts of plasma through the usual bacterial filters.

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