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AERIALY APPLIED ANTIBIOTICS FAIL TO CONTROL  
HYPOXYLON CANKER ON ASPEN

Gerald W. Anderson<sup>1</sup>

In the early 1960's, much attention was directed toward the use of antibiotics for control of plant diseases. During this period a test was initiated to determine whether some of these materials would control Hypoxylon mammatum cankers on quaking aspen (Populus tremuloides). The test area was approximately 9 miles southeast of Aurora, Minnesota. The average diameter (dbh) of the study trees was 2 to 4 inches. None of the trees chosen for study had more than one infection. All of the test cankers were located on the main bole and encompassed less than half the circumference of the stem at the point of infection.

Five different formulations were used in this study: three of phytoactin and two of semicarbazone. In addition, there was an oil-emulsion check and an untreated check plot. Chemicals were applied to 10 test trees in separate blocks separated by isolation strips. Trees in each block received a single foliar application of one chemical applied by helicopter on June 1, 1962.

Before treatment each canker was examined and described. In subsequent years the trees were reexamined and changes in overall canker appearance noted. Tree mortality was recorded annually. Only five of the 70 sample trees were still living in 1970 (Table 1). Of these five trees, one was in a plot that had received an antibiotic treatment, two were in the untreated check plot, and two in the 20% oil-emulsion control plot.

The amount of callus formed around the margins of the cankers was used as a second measure of treatment effectiveness. Callus development was categorized as being heavy, medium, or light on each sample tree. In all of the plots treated with antibiotics, callus development was similar to that on the untreated check plot (Table 1). The oil-emulsion control plot, however, had trees with more callus material than any of the other plots. But since this did not result in more trees surviving at the end of the study, it cannot be considered to be of practical consequence in controlling this disease.

It is concluded that because none of these materials was effective in controlling Hypoxylon canker, they do not merit further testing against this disease if they are to be applied aerially. Whether the results would have been different had the chemicals been applied directly onto the cankers is unknown.

Table 1. Mortality and callus formation associated with Hypoxylon cankers on aspen trees treated with antibiotics by aerial application.

Treatment (10 trees each)	Mortality (no. of trees)									Callus development		
	1963	1964	1965	1966	1967	1968	1969	1970	Total	Heavy	Medium	Light
Phytoactin L-444 200 ppm 20% oil	0	5	3	2	0	0	0	0	10	1	2	7
Phytoactin L-318 200 ppm 20% oil	0	4	2	0	1	2	1	0	10	1	1	8
Phytoactin L-318 200 ppm H <sub>2</sub> O + dye	0	8	0	0	0	1	0	1	10	2	0	8
Semicarbazone 100 ppm 20% oil	0	3	1	4	1	0	1 <sup>a</sup>	0	10	2	3	5
Semicarbazone 200 ppm 20% oil	0	2	1	4	0	1	0	1	9	1	2	7
20% oil-emulsion check	0	4	2	2	0	0	0	0	8	4	3	3
Untreated check	0	3	2	2	0	1	0	0	8	2	2	6

<sup>a</sup>Tree died from suppression before fungus had girdled stem.

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