Alphabetized by first author's last name

SPHAEROPSIS SAPINA AND HOST WATER STRESS IN A RED PINE PLANTATION IN CENTRAL WISCONSIN. LT. Bledsoe and G.R. Stansell. Dept. of Plant Path. Univ. of Wisconsin-Madison, Madison, WI. 53706.

Sphaeroipsis sapinae causes a shoot blight and canker disease of various conifers. Severe losses of pines due to S. sapinae are reported throughout the world, on trees predisposed by stresses, including drought. A field experiment was conducted to determine if water stress affects disease development of S. sapinae in red pine plantations. Study plots were established in a nine-year-old red pine plantation in central WI. Removal of vegetation around the study trees and supplemental watering were used to influence the water potential of the pines. The experiment was repeated in two separate plots approximately 1/4 mile apart in two consecutive years (1992, 93). In 1994 the experiment was repeated at a third location. In the same plantation. Shoot tips were inoculated by placing a colonized agar plug on a wound made by removing a needle fascicle. Results showed that “A” isolates were aggressive and “B” isolates were less aggressive. Non-watered trees with competing vegetation (treated conditions) had significantly lower xylem water potentials (more water stressed) than water herbicide treatments. Water stress caused in part by competing vegetation, resulted in increased disease development of trees by S. sapinae “A” isolates. The proper identification of the S. sapinae morphotypes may help estimate risk of damage from disease. Competing vegetation affects water stress and disease development, even in relatively moist years, on trees previously considered well-established.


Both the primary germ tubes (PGT) and appressoria of barley mildew form a substance sticking to the host cuticle. This presumed adhesive material (PAM) is preserved in ethanol:chloroform (75:25,v/v) fixative containing 10% TCA but not in FAA or ethanol:acetic acid. The peak time for PAM in PGTs is 3 h and 10 h for appressoria but disappears 4 h later in both. In LM the PAM stains with trypan blue in hot lactophenol and has a flat, honeycomb-like appearance. PAM is not preserved in routine SEM processing but is preserved in the ethanol:chloroform fixative, then critical point drying. SEM shows a PAM disk not flat but more doughnut-shaped with appressorium pushed into the middle. Besides adhesion, the PAM may provide a milieu for localizing fungus enzymes.

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Pterynopteront trichotermum, the cause of wheat leaf spot, contaminates in culture under alternating light and dark cycles with condiospores formed in light and conidia in dark. The effects of dew and intercepted wetness on sporulation in nature are not clear. Adult plants of the susceptible spring wheat line ND1-498 were inoculated with isolate N6 at measuring flag leaf and first leaf area of three times. After 1-24 h-wet period, plants were held in 21°C growth chambers and submergently for 10 days. The flag leaf was removed, then was returned to 20°C conidiation and plants were returned to 21°C growth chambers for various light and wetness regimes lasting from 12 to 96 h. Results showed that spore contamination was estimated at the end of each treatment, and spores per mm² were counted and estimated from a sample of 10 mm². A 12 h-wet treatment was made to bring plants to various treatments for 12 to 96 h in a continuous light, continuous wet environment. However, the cultural requirement for conidiation as a whole, conidial formation on 12 h in a wet environment in the dark. After 96 h of alternating 8 h dark, wet and 16 h in a dry, dark cycle, 1.7 conidia mm² were produced. Condiospores thus are initiated on wheat leaves in a non-sterilized atmosphere in the light and a wet period during darkness is sufficient for contamination in plants.

TIMING OF APOTHECIAL PRODUCTION BY SCI FROGINA SCLEROTIORUM IN KENTUCKY. D.E. Hershman. Department of Plant Pathology, University of Kentucky Research and Education Center, Princeton, KY 42444.

Scelerotinia harvested in early June (1990-92) from canola (Brassica napus var oleifera) with Sclerotinia sclerotiorum stem rot were overwintered and subsequently monitored in replicated microplots for the production of apothecia during spring, 1991-93. Each year, apothecial production commenced in late March, peaked during mid-to late April, and ceased in early, mid- or late May, depending on the year. Apothecial production coincided with canola flowering each year. Data indicating the consistency of both the onset of apothecial production and its relationship to canola flowering will be useful in the development of stem rot management programs using foliar fungicides. In addition, data on the timing of apothecial production may help explain the absence of Sclerotinia sclerotiorum in tobacco and tomato seedlings produced in newly developed, hydroponic, production systems.

PATHOGENIC VARIATION AMONG ISOLATES OF TUBERCULARIA CAUSING CANKERS OF WOODY PLANTS. W. B. Jackson and R. W. Slack. Dept. of Plant Pathology, North Dakota State Univ, Fargo, ND 58105.

Tuberculina ulmea, anamorph of Necrotecta conopan, causes branch and stem cankers on various kinds of trees and shrubs in the northern plains states. In this region the most common hosts have been Siberian elm, Russian olive, and, more recently, honeysuckle. Tuberculina has been variously regarded as a primary pathogen, an opportunistic invader, or a saprophyte, depending on the host studied and the location where the work was done. We collected 11 isolates of T. ulmea from five hosts. They were individually inoculated into wounded stems of Siberian elm and Russian olive plants growing in the greenhouse in a replicated trial. After five weeks, the length of long necrotic lesions were measured as an index of pathogenicity for each isolate. Extent of canker ranged from 7 mm to 90 mm and differed significantly between isolates. Pathogenicity of isolates was similar on both hosts although cankers were generally larger on Siberian elm. There was no apparent relationship between the source of the isolates and pathogenicity to either host.