Biological Characteristics of Brown Rust in Beihai ,China and Its Control Strategy

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Introduction

- The pathogens of sugarcane rust reported include *Puccinia melanocephala* H. & P. Syd, *Puccinia kuehnii* Butler and *P. melanocephala* sydow., which all belong to *Puccinia*, Basidiomycetes

Introduction

- The sugarcane variety of ROC 89-1626 planted in Binhai farm in Beihai county of Guangxi Province had suffered serious rust disease during 5-9 in 2009, the incidence rate of infected leaves in the serious damaged area reached 80% with the diseased plant rate of 100%, and the variety was the main cultivation variety planted in Beihai.



Method

- Diseased leaves were collected from the plants infected by sugarcane rust in Binhai farm in Guangxi Province, which were dried and stored indoors.
- The objective: biological characteristics of sugarcane rust pathogen: carbon source, temperature, light, humidity, pH, survival ability.

The Symptoms

- The lesion had the length of 1-10mm and the width of 1-4mm. The leaf surface also could produce urediospore sorus when rust was seriously occurred, which would united to large area of amorphous plaques, the back of lesion often live many dusty rust spore, if the diseased leaves were scrubbed with fingers, rusty powder would stain on fingers.



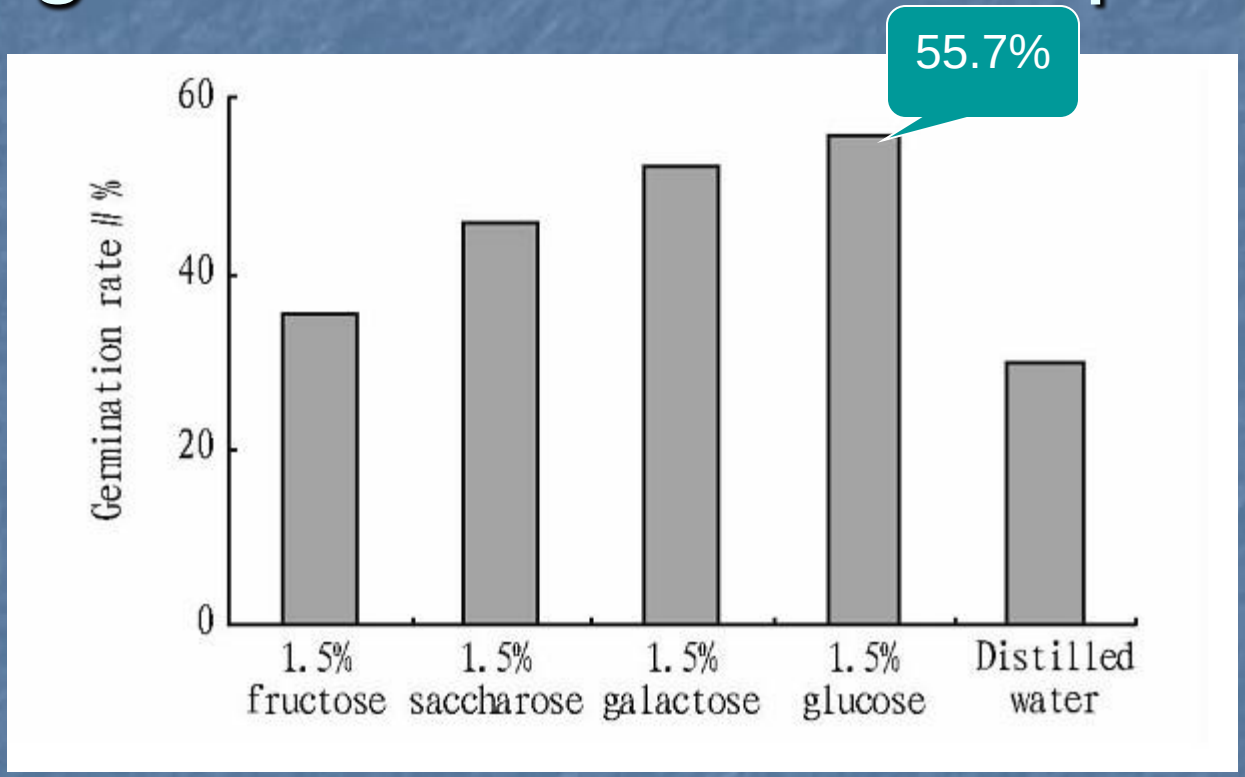
The Pathogen

- The pathogen of brown rust is （***Puccinia melanocephala H.&P. Syd.***）

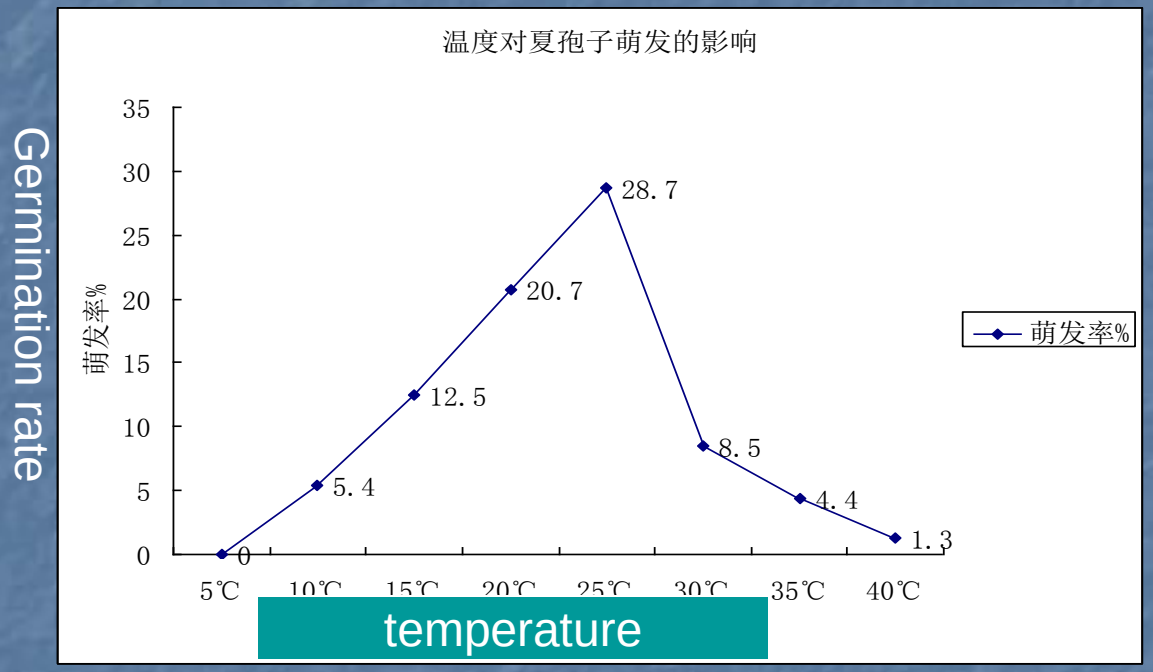




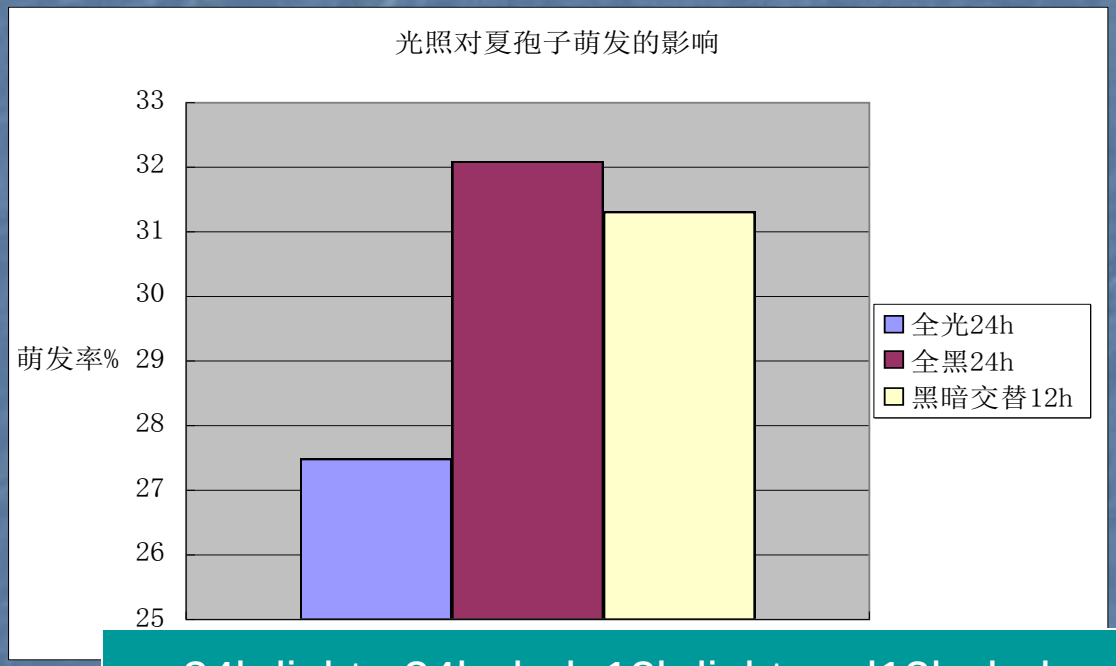
Effect of carbon source on germination of urediospore



Effect of temperature on germination of urediospore

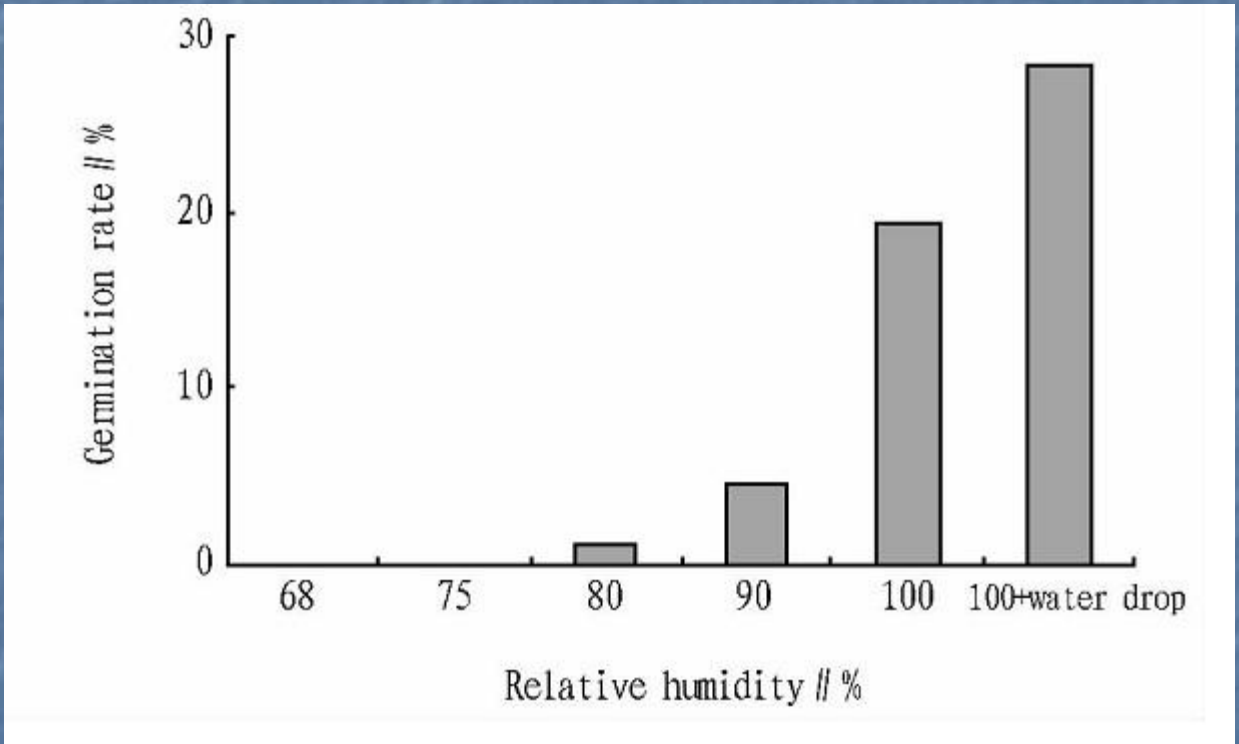


Effect of light on germination of urediospore

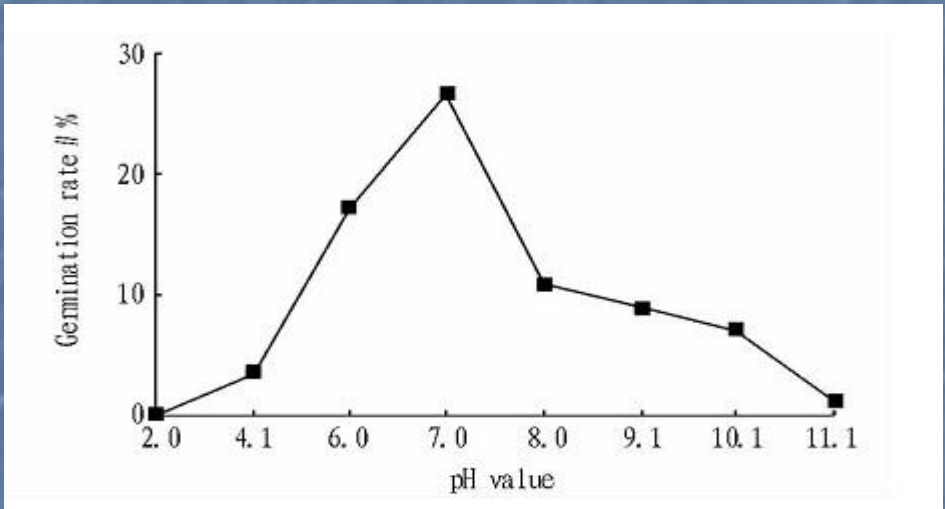


24h light 24h dark 12h light and12h dark

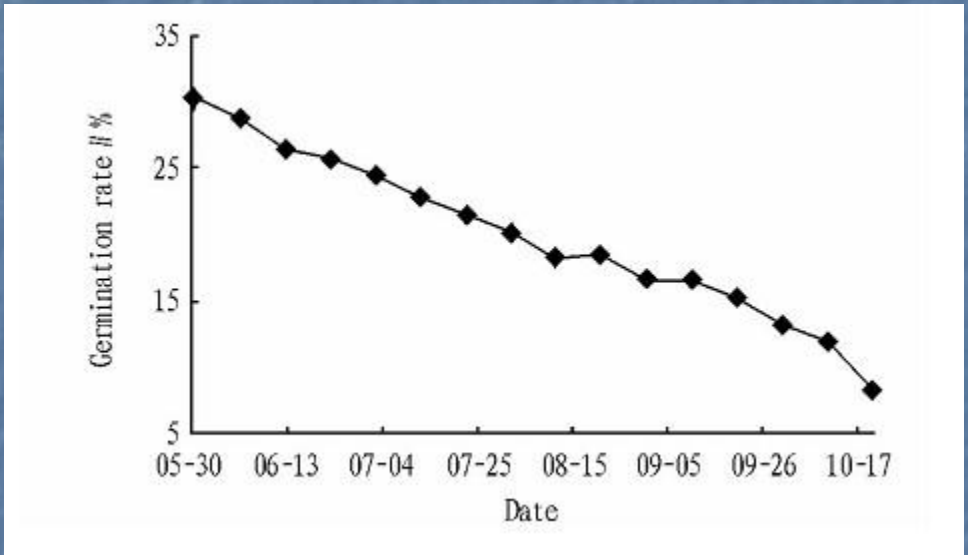
Effect of humidity on germination of urediospore



Effect of pH on germination of urediospore



Determination of survival ability of urediospore



Result

- The germination of uredospores would be promoted under the dark condition or with the glucose concentration of 1.5%.
- The suitable temperature range for the germination of uredospore was 20℃-25 ℃.
- The most suitable pH was 7.0.
- The germination rate was the highest under the condition of complete dark.
- The germination rate of urediospore was the highest under the condition of 100%.
- At routine conditions, the longest survival period of uredospore was 120 days.

Control Methods

- Selection of resistant varieties and avoiding to plant susceptible varieties.
- Enhance field management: water 、fertilizer and strip old leaves、burn the leaves after harvest
- Chemical agent：Bordeaux mixture、

65％Chem Zineb、75％Chlorothalonil etc.

Thank you for your attention!