

Guia de Identificação de Doenças em Cereais de Inverno

Edson Clodoveu Picinini
José Maurício Fernandes



LV. 407

Guia de
Identificação de
Doenças em Cereais
de Inverno



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Produzir alimentos é um desafio para o produtor que direciona os rumos da pesquisa. Produzir em grandes quantidades e de forma eficaz é meta inarredável da pesquisa. O trigo é uma das "commodities" agrícolas exploradas no Brasil que mais desafios apresenta à pesquisa.

Um número considerável de fatores ambientais e biológicos afetam a cultura de trigo, entre os quais as doenças ocupam posição destacada pelos substanciais danos econômicos impostos à cultura e pelo potencial de infecção que expressam nos agrossistemas. No entanto, apesar da diversidade e da severidade, elas são perfeitamente manejáveis, haja vista a diversidade de opções tecnológicas oferecidas aos produtores.

Esta publicação, intencionalmente produzida na forma de "livro de bolso", oferece informações indispensáveis ao manejo de doenças que afetam a cultura de trigo no Brasil. As informações contidas neste compêndio permitem diagnosticar e conhecer o potencial epidemiológico das diferentes doenças e sugerem possíveis controles que podem ser adotados para minimizar danos ou prevenir riscos.

A expectativa na Embrapa Trigo com este produto é que técnicos, produtores, estudantes, entre outros, ao aplicarem estas informações, possam auxiliar na redução de incertezas associadas ao processo produtivo, sempre que houver necessidade de se investir na produção de alimentos economicamente mais acessíveis e sanitariamente mais limpos.

Benami Bacaltchuk
Chefe-Geral da Embrapa Trigo

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Sintomatologia da doença

Nome comum da doença

Binômio, em latim, da forma anamorfa

Binômio, em latim, da forma teleomorfa

Condições climáticas para estabelecimento da doença



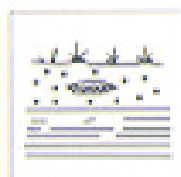
Intervalo de temperatura para desenvolvimento do patógeno.



Duração em horas do molhamento foliar (água livre) ideal para desenvolvimento do patógeno.



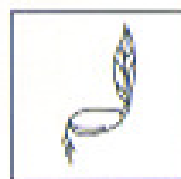
A ocorrência de precipitação pluvial no período favorece o estabelecimento do patógeno.



O patógeno tem habilidade de sobreviver no solo.



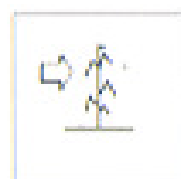
O patógeno tem habilidade de sobreviver em restos culturais.



O patógeno é transmitido pela semente.



Existem vários hospedeiros para o patógeno.



Existe um único hospedeiro para o patógeno.



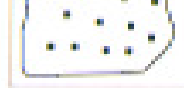
A doença é do tipo policíclica, e o número no interior do círculo indica o número de dias (d) para uma nova infecção.



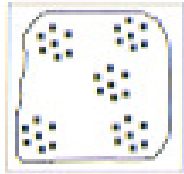
A doença é do tipo monocíclica, ou seja, a infecção ocorre apenas uma única vez durante o ciclo da cultura.



Os propágulos do patógeno são disseminados



forma generalizada.



Doença distribuída na lavoura em forma de manchas ao acaso.



O uso de sementes livres do patógeno é recomendado para controle da doença.



Rotação de culturas com espécies não suscetíveis ao patógeno.



Existem cultivares com resistência genética à doença.



A resistência genética nas cultivares é parcial, devendo ser complementada com outras medidas de controle.



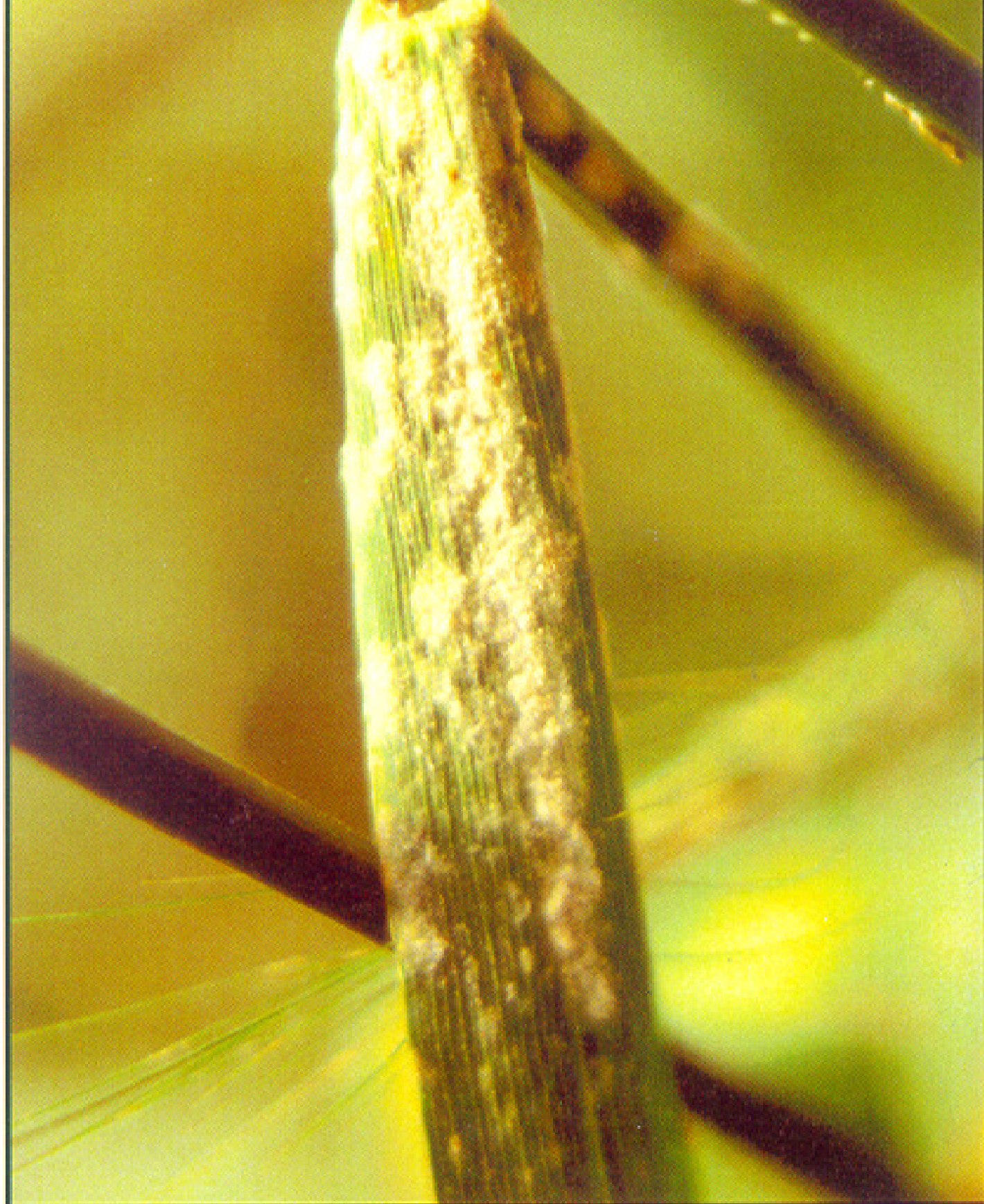
O enterrio dos restos culturais reduz a quantidade de inóculo primário.



Existem produtos químicos eficientes no controle da doença.

Doenças em trigo

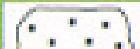
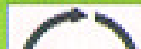
- Oídio de trigo (*Blumeria graminis* f.sp. *tritici*)
- Ferrugem da folha de trigo (*Puccinia triticina*)
- Ferrugem do colmo de trigo (*Puccinia graminis* f.sp. *tritici*)
- Ferrugem linear de trigo (*Puccinia striiformis*)
- Mancha marrom de trigo (*Cochliobolus sativus*)
- Mancha da gluma de trigo (*Phaeosphaeria nodorum*)
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- Branqueamento da folha de trigo (*Pseudomonas syringae*)
- Queima da bainha de trigo (*Pseudomonas fuscovaginae*)

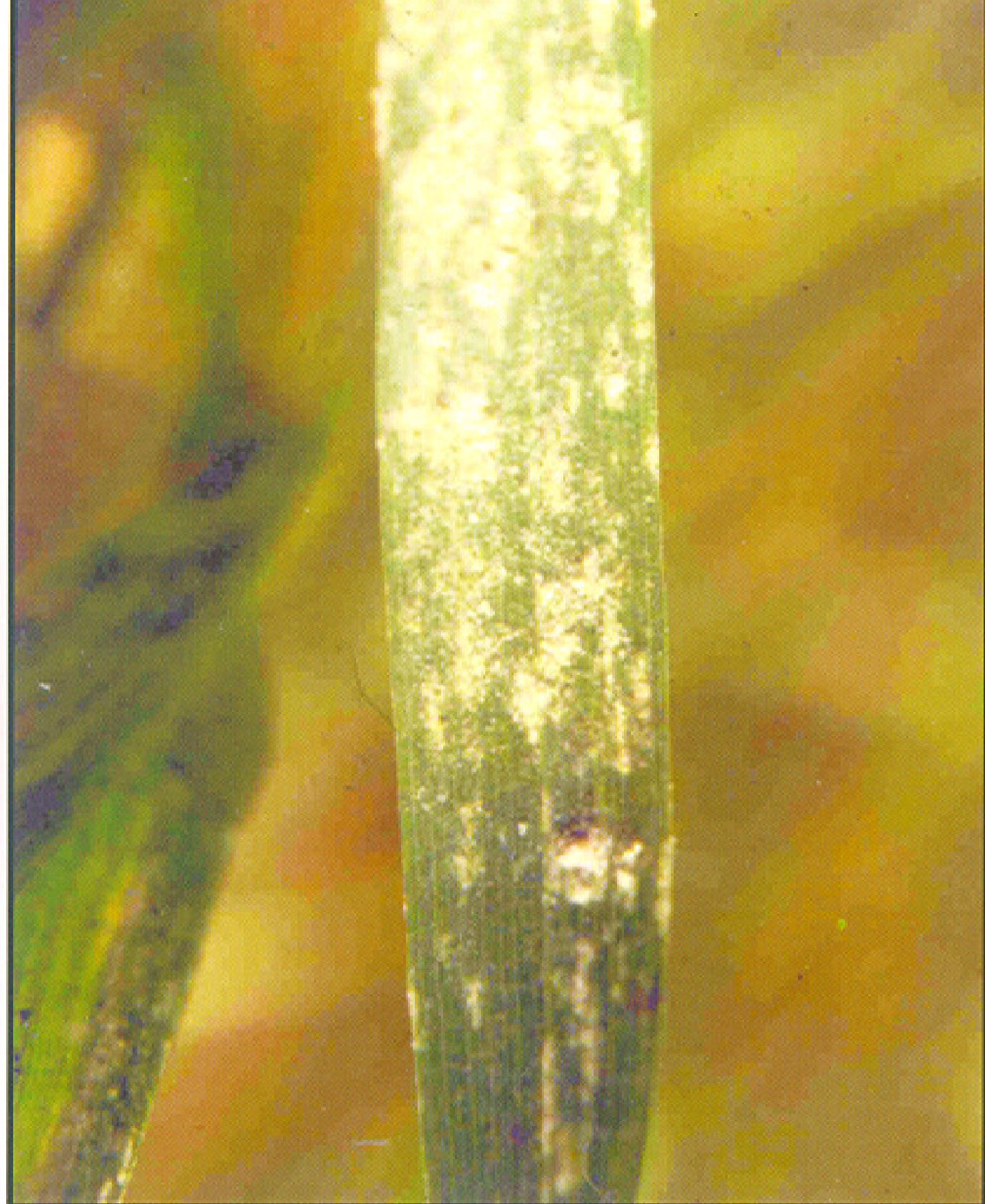


Oídio de trigo

Blumeria graminis f.sp. *tritici*

15°C
a
22°C





Oídio de trigo
Blumeria graminis f.sp. *tritici*

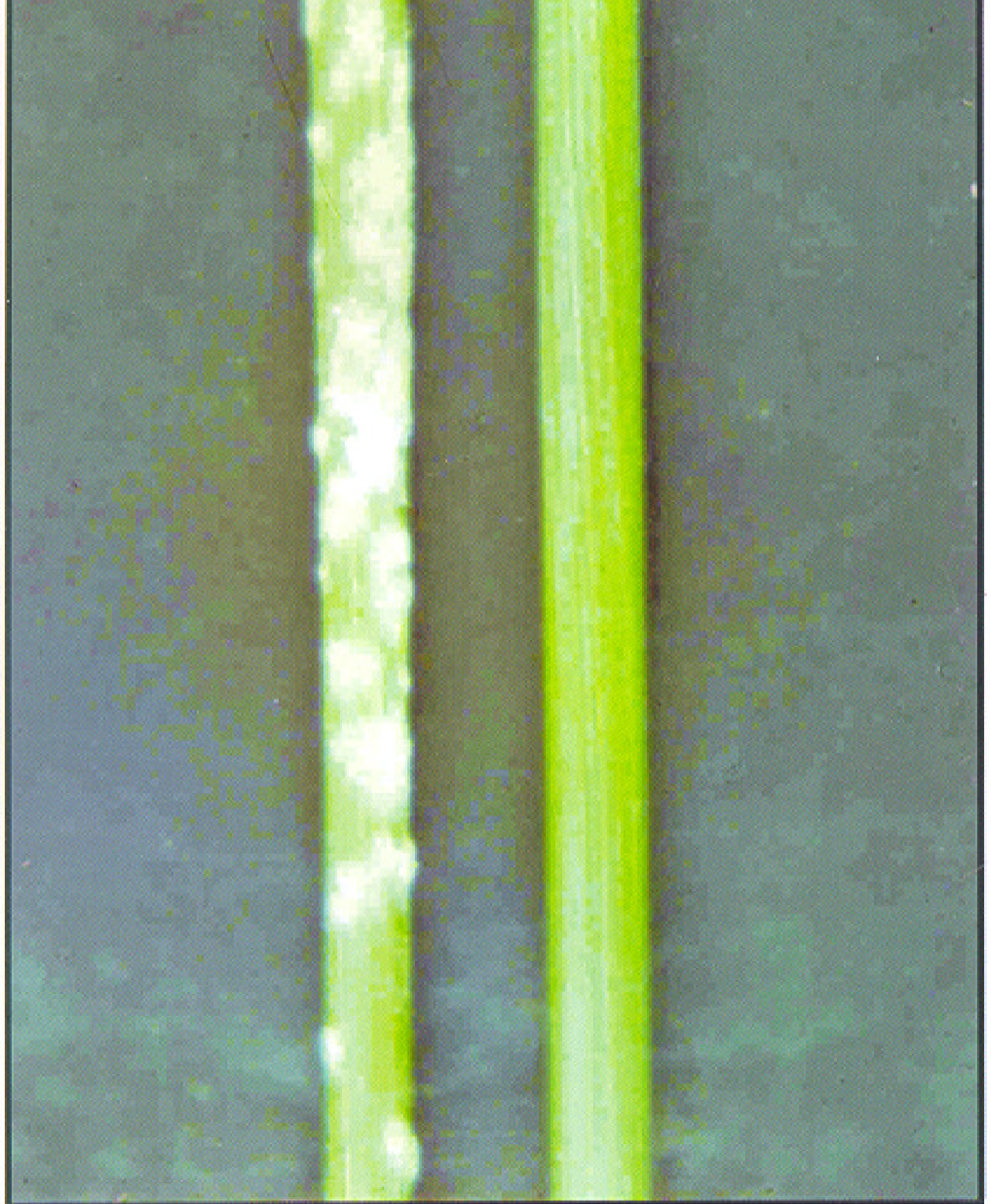


15°C

a

22°C





Oídio de trigo

Blumeria graminis f.sp. *tritici*



15°C

a

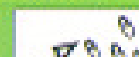
22°C

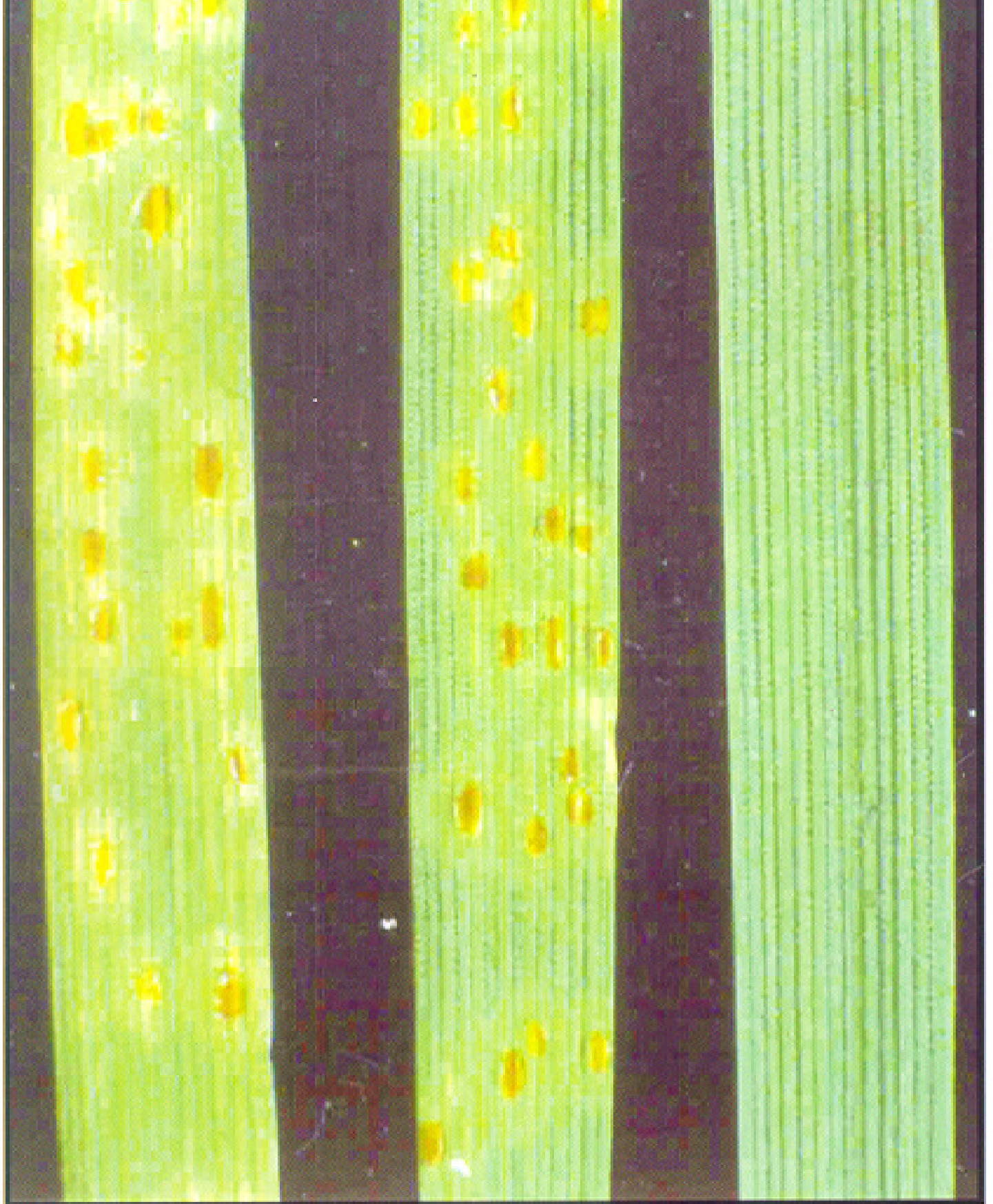




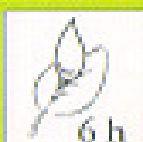
Oídio de trigo

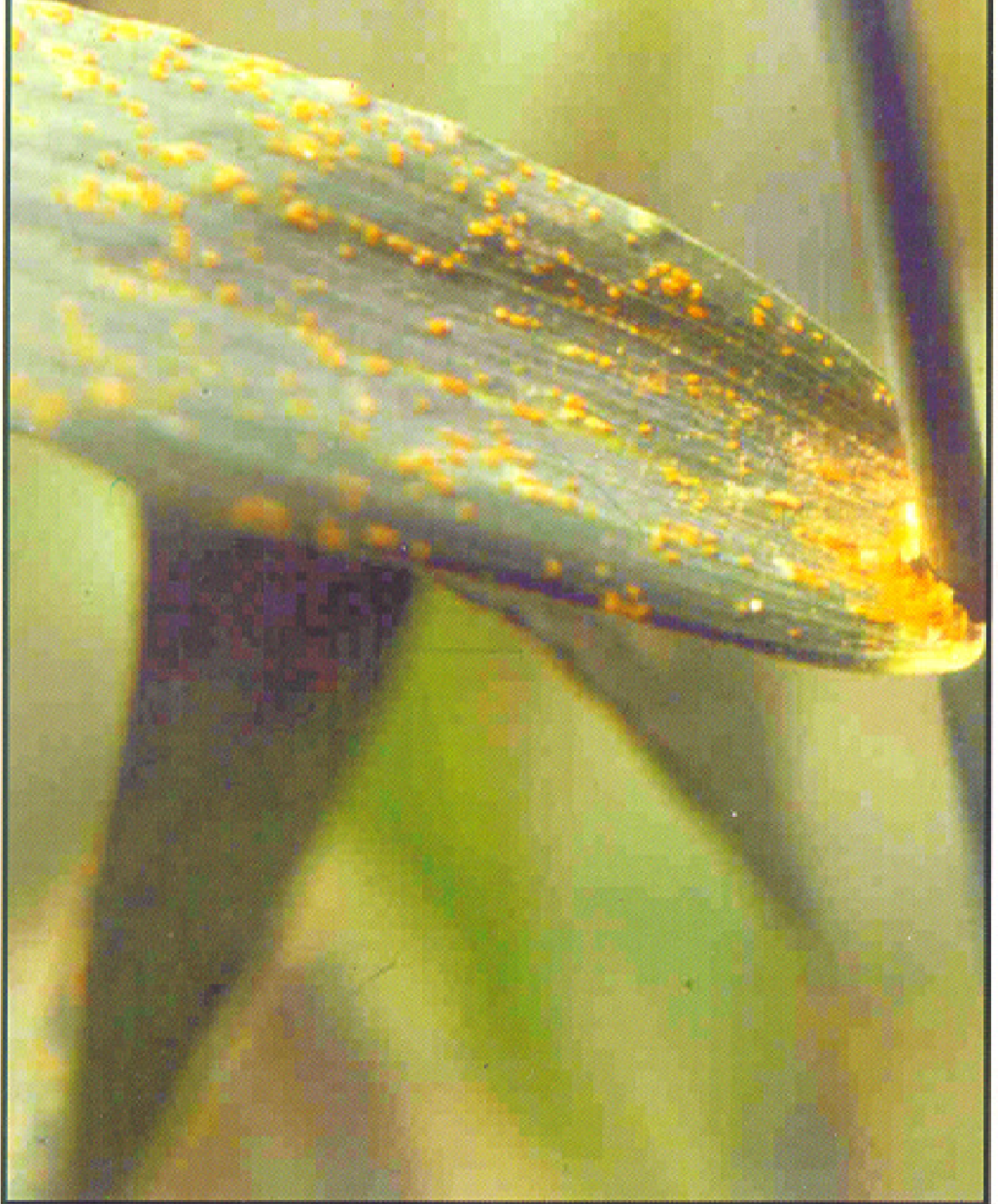
Blumeria graminis f.sp. *tritici*





Ferrugem da folha de trigo
Puccinia triticina





Ferrugem da folha de trigo
Puccinia triticina





Ferrugem da folha de trigo

Puccinia triticina



20°C

a

22°C



6 h



Ferrugem da folha de trigo

Puccinia triticina



15°C

a

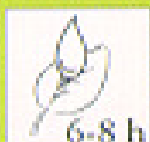
22°C



6 h



Ferrugem do colmo de trigo
Puccinia graminis f.sp. *tritici*





Ferrugem do colmo de trigo
Puccinia graminis f.sp. *tritici*



18°C
a
25°C



6-8 h



Ferrugem linear de trigo
Puccinia striiformis





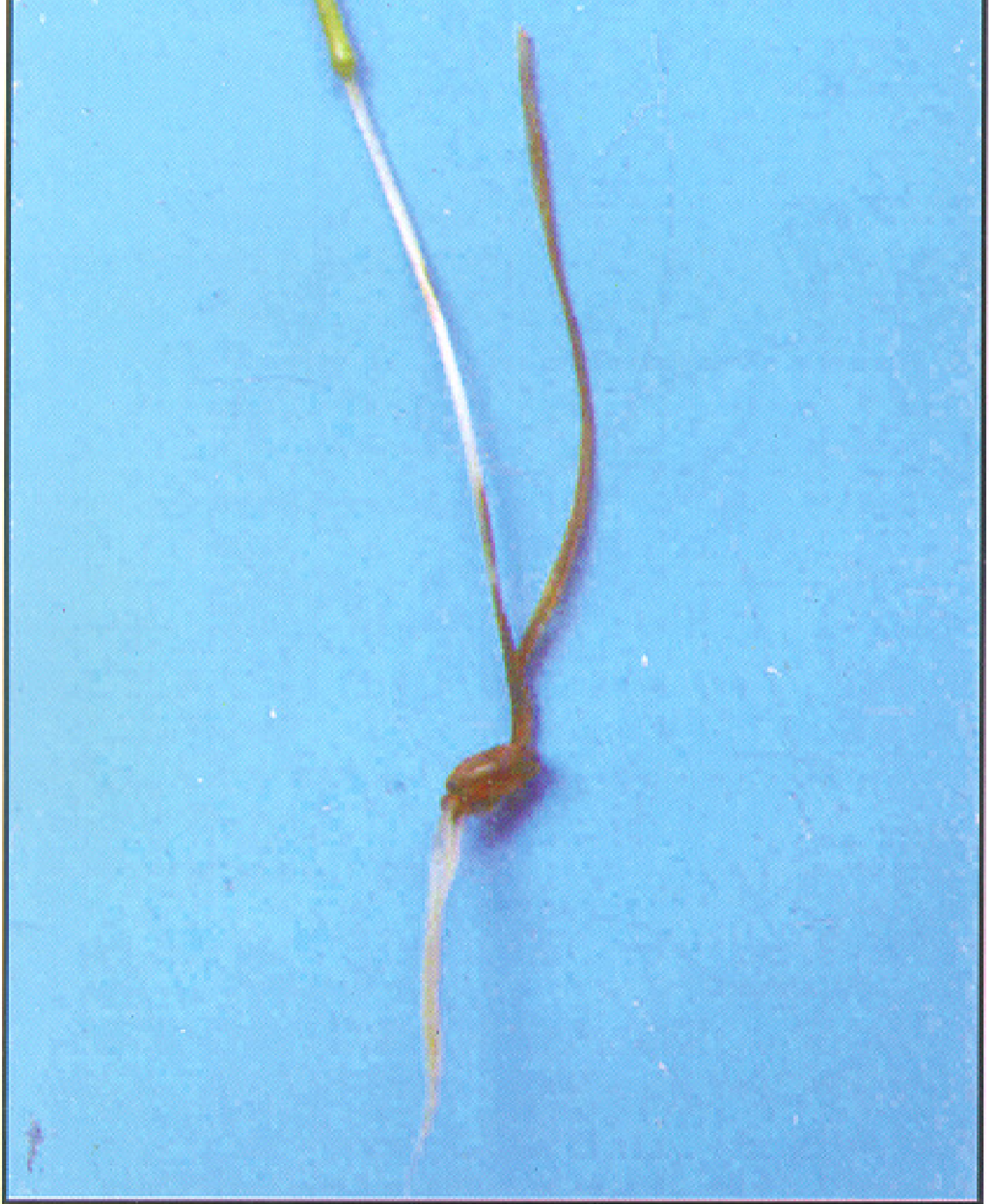
Ferrugem linear de trigo
Puccinia striiformis





Ferrugem linear de trigo
Puccinia striiformis





Mancha marrom de trigo
Cochliobolus sativus
Bipolaris sorokiniana



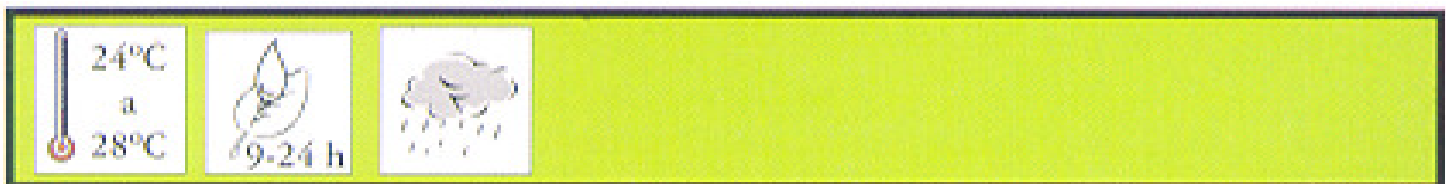
24°C

a

28°C

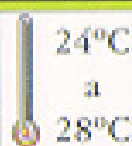


9-24 h





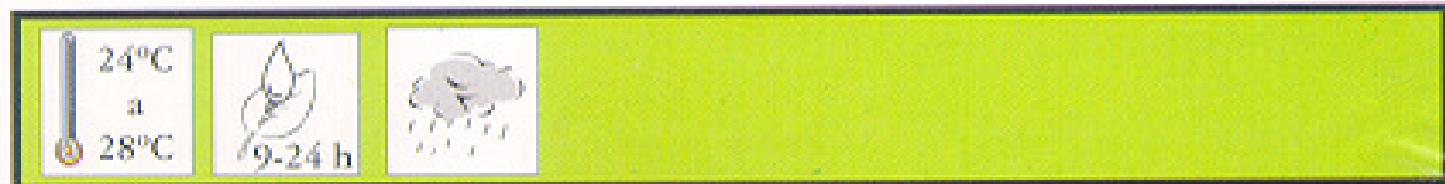
Mancha marrom de trigo
Cochliobolus sativus
Bipolaris sorokiniana



24°C
a
28°C






9-24 h

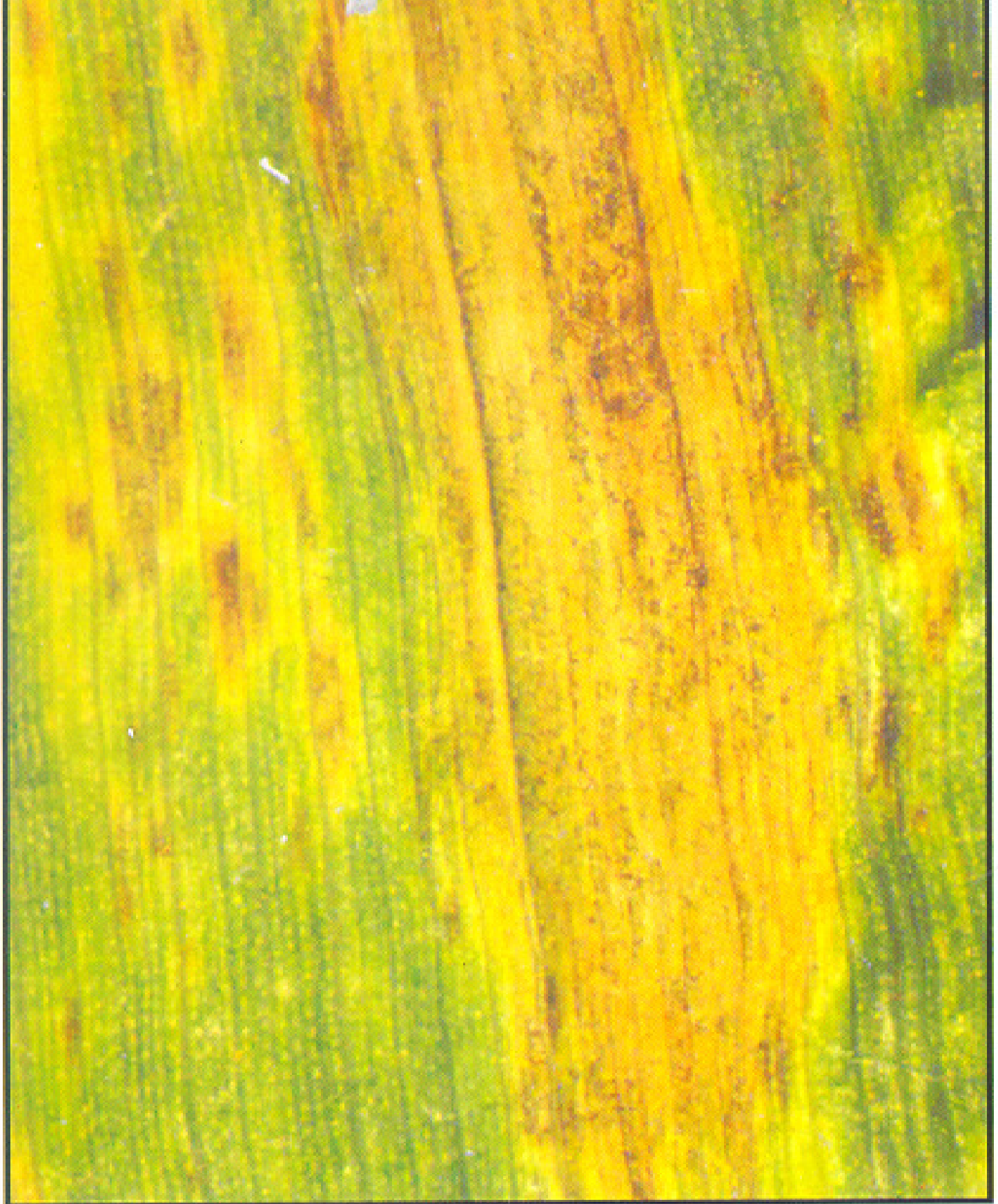




Mancha marron de trigo
Cochliobolus sativus
Bipolaris sorokiniana

 24°C a 28°C	 9-24 h	
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Mancha marrom de trigo

Cochliobolus sativus

Bipolaris sorokiniana

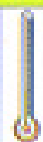




Mancha marrom de trigo

Cochliobolus sativus

Bipolaris sorokiniana



24°C
a
28°C



9-24 h





Mancha marron de trigo

Cochliobolus sativus

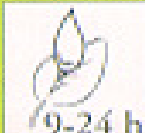
Bipolaris sorokiniana



24°C

a

28°C



9-24 h





Mancha da gluma de trigo

Phaeosphaeria nodorum

Stagonospora nodorum



20°C
a
25°C



48-72 h

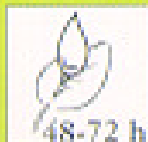




Mancha da gluma de trigo

Phaeosphaeria nodorum

Stagonospora nodorum





Mancha da gluma de trigo

Phaeosphaeria nodorum

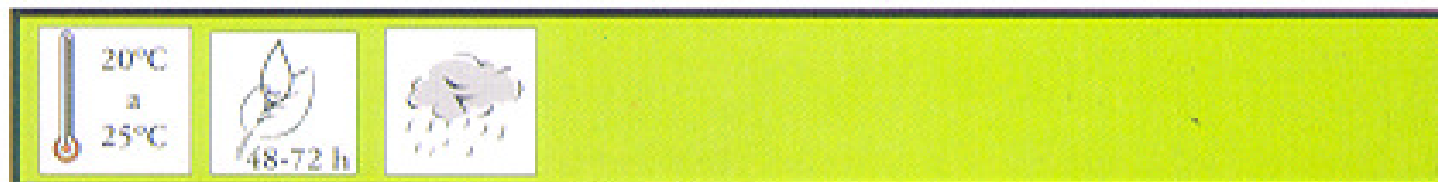
Stagonospora nodorum

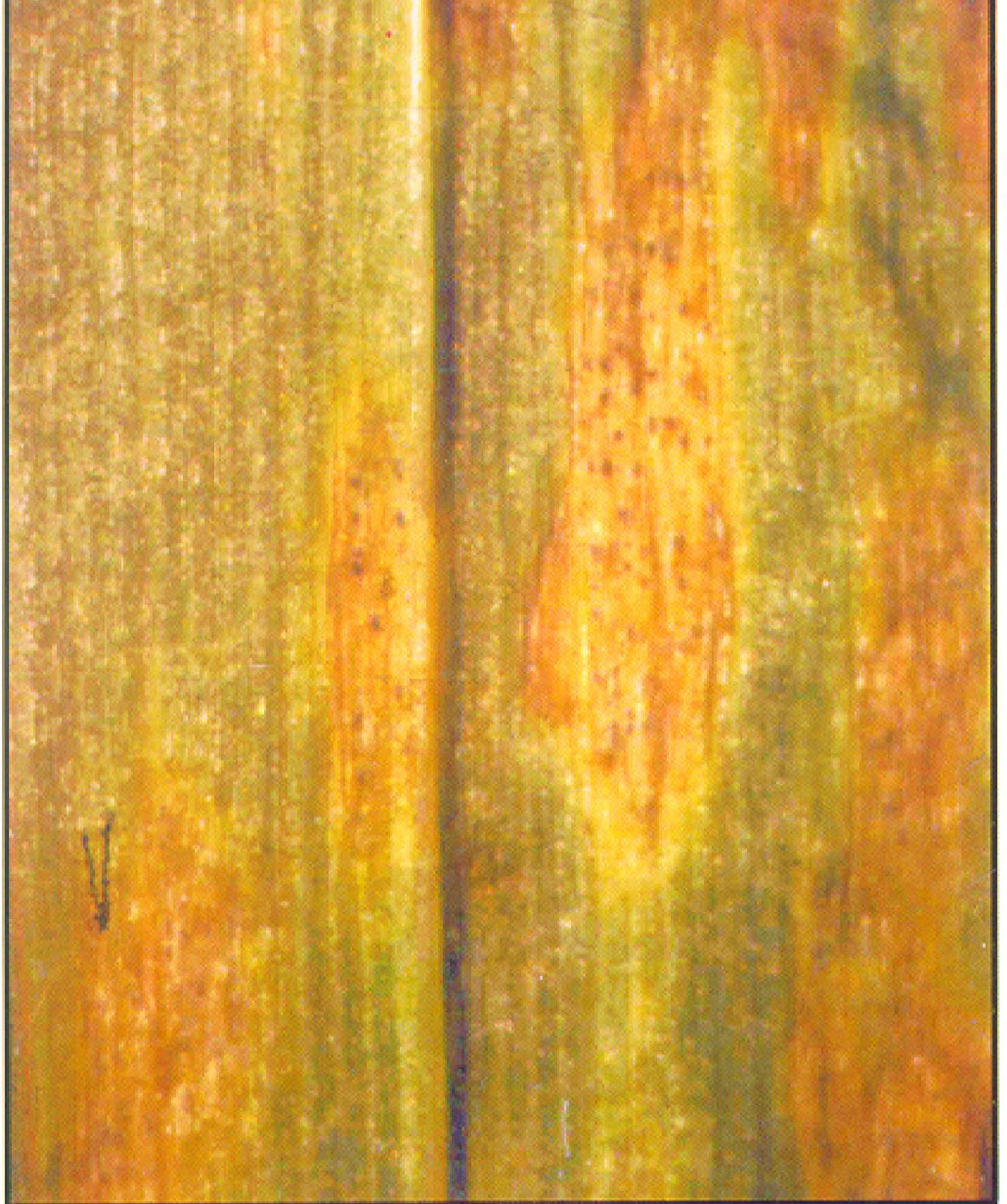


20°C
a
25°C



48-72 h

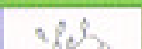
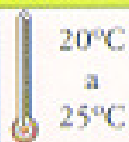


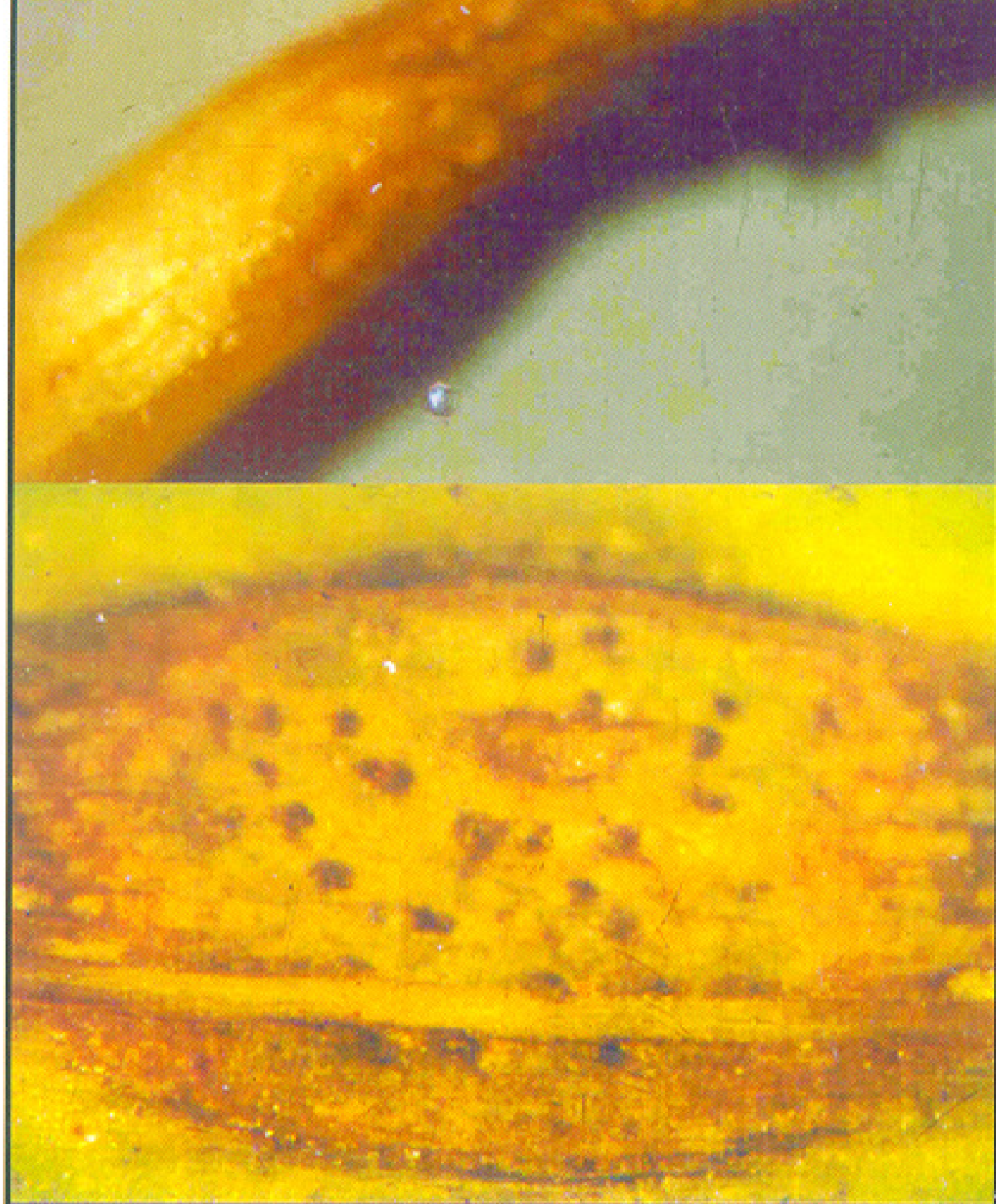


Mancha da gluma de trigo

Phaeosphaeria nodorum

Stagonospora nodorum

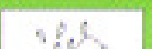
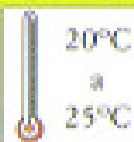




Mancha da gluma de trigo

Phaeosphaeria nodorum

Stagonospora nodorum





Mancha da gluma de trigo

Phaeosphaeria nodorum

Stagonospora nodorum



20°C
a
25°C



48-72 h





Mancha da gluma de trigo

Phaeosphaeria nodorum

Stagonospora nodorum



20°C
a
25°C



48-72 h





Mancha bronzeada da folha de trigo

Pyrenophora tritici-repentis

Drechslera tritici-repentis



18°C
a
28°C



24-48 h





Mancha bronzeada da folha de trigo

Pyrenophora tritici-repentis

Drechslera tritici-repentis



18°C
a
28°C



24-48 h





Mancha bronzeada da folha de trigo

Pyrenophora tritici-repentis

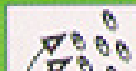
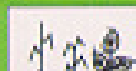
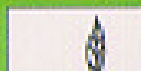
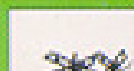
Drechslera tritici-repentis



18°C
a
28°C

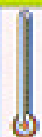


24-48 h





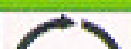
Mancha salpicada da folha de trigo
Mycosphaerella graminicola
Septoria tritici



15°C
a
20°C



72-96 h





Mancha salpicada da folha de trigo

Mycosphaerella graminicola

Septoria tritici



15°C
a
20°C



72-96 h





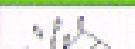
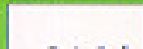
Mancha acuosa de trigo

Calonectria nivalis

Gerlachia nivalis



15°C
a
20°C





Mancha aquosa de trigo
Calonectria nivalis
Gerlachia nivalis



15°C
a
20°C

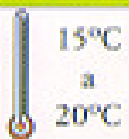




Mancha aquosa de trigo

Calonectria nivalis

Gerlachia nivalis



15°C
a
20°C

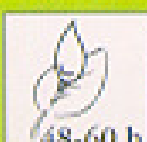




Giberela de trigo

Gibberella zeae

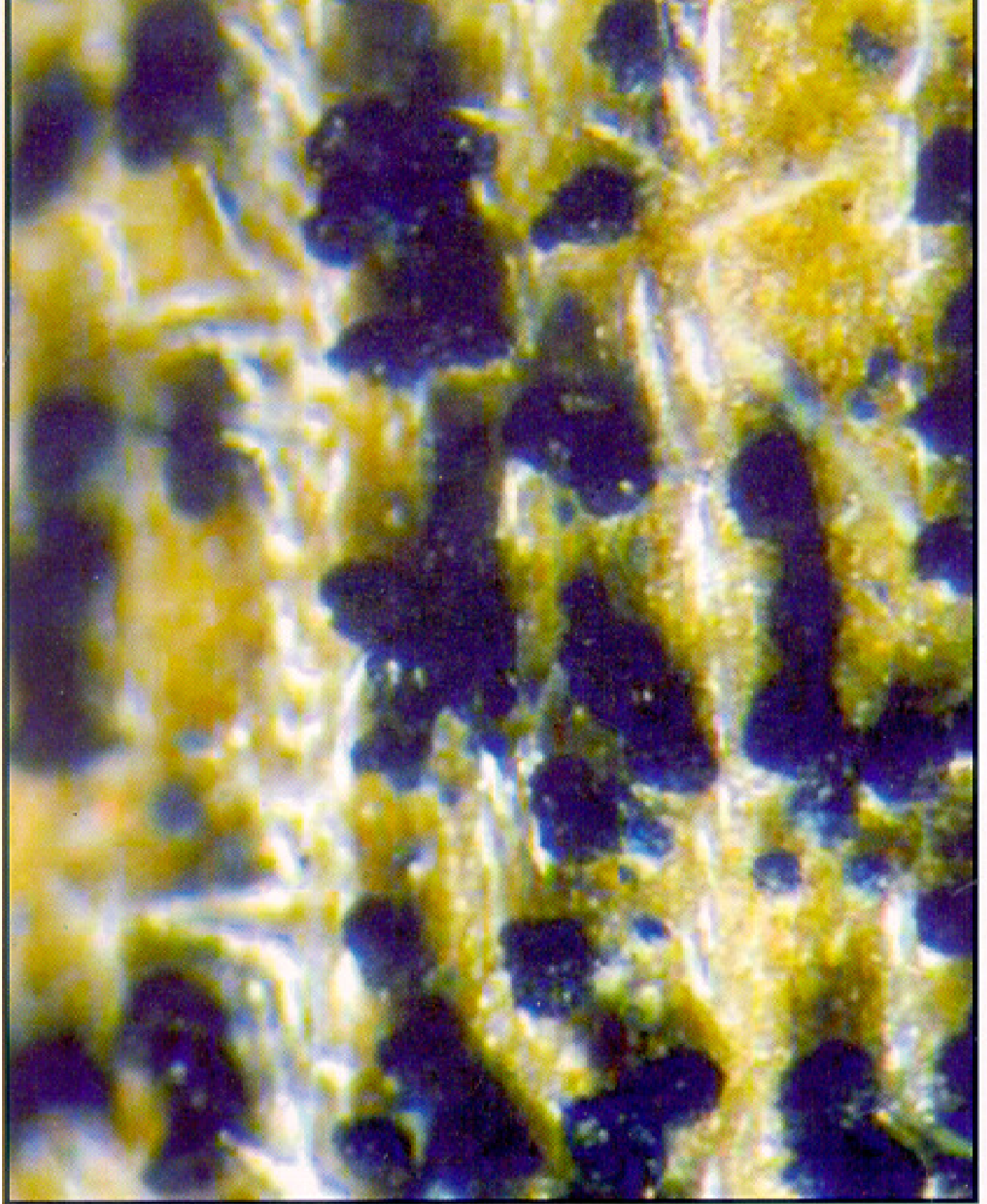
Fusarium graminearum



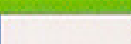
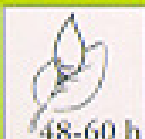


Giberela de trigo
Gibberella zeae
Fusarium graminearum








Giberela de trigo
Gibberella zeae
Fusarium graminearum





Giberela de trigo
Gibberella zeae
Fusarium graminearum

 24°C a 30°C	 48-60 h	
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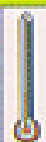
				
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Giberela de trigo

Gibberella zeae

Fusarium graminearum



24°C
a
30°C



48-60 h

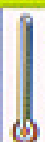




Giberela de trigo

Gibberella zeae

Fusarium graminearum



24°C
a
30°C



48-60 h





Giberela de trigo

Gibberella zeae

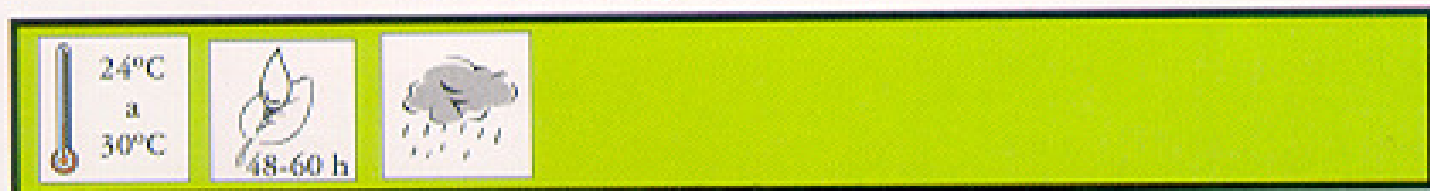
Fusarium graminearum



24°C
a
30°C



48-60 h





Giberela de trigo

Gibberella zeae

Fusarium graminearum



24°C
a
30°C



48-60 h





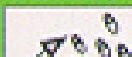
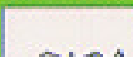
Brusone de trigo
Magnoportha grisea
Pyricularia grisea



24°C
a
28°C

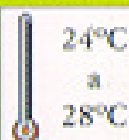


8-18 h





Brusone de trigo
Magnoportha grisea
Pyricularia grisea



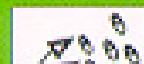
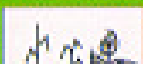
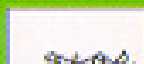
24°C

a

28°C

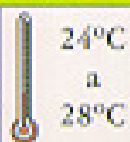


8-18 h





Brusone de trigo
Magnaporthe grisea
Pyricularia grisea



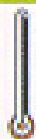
24°C
a
28°C



8-18 h



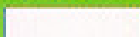
Brusone de trigo
Magnoportha grisea
Pyricularia grisea



24°C
a
28°C



8-18 h





Carvão de trigo
Ustilago tritici



18°C
a
20°C



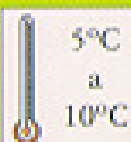
Carvão de trigo
Ustilago tritici



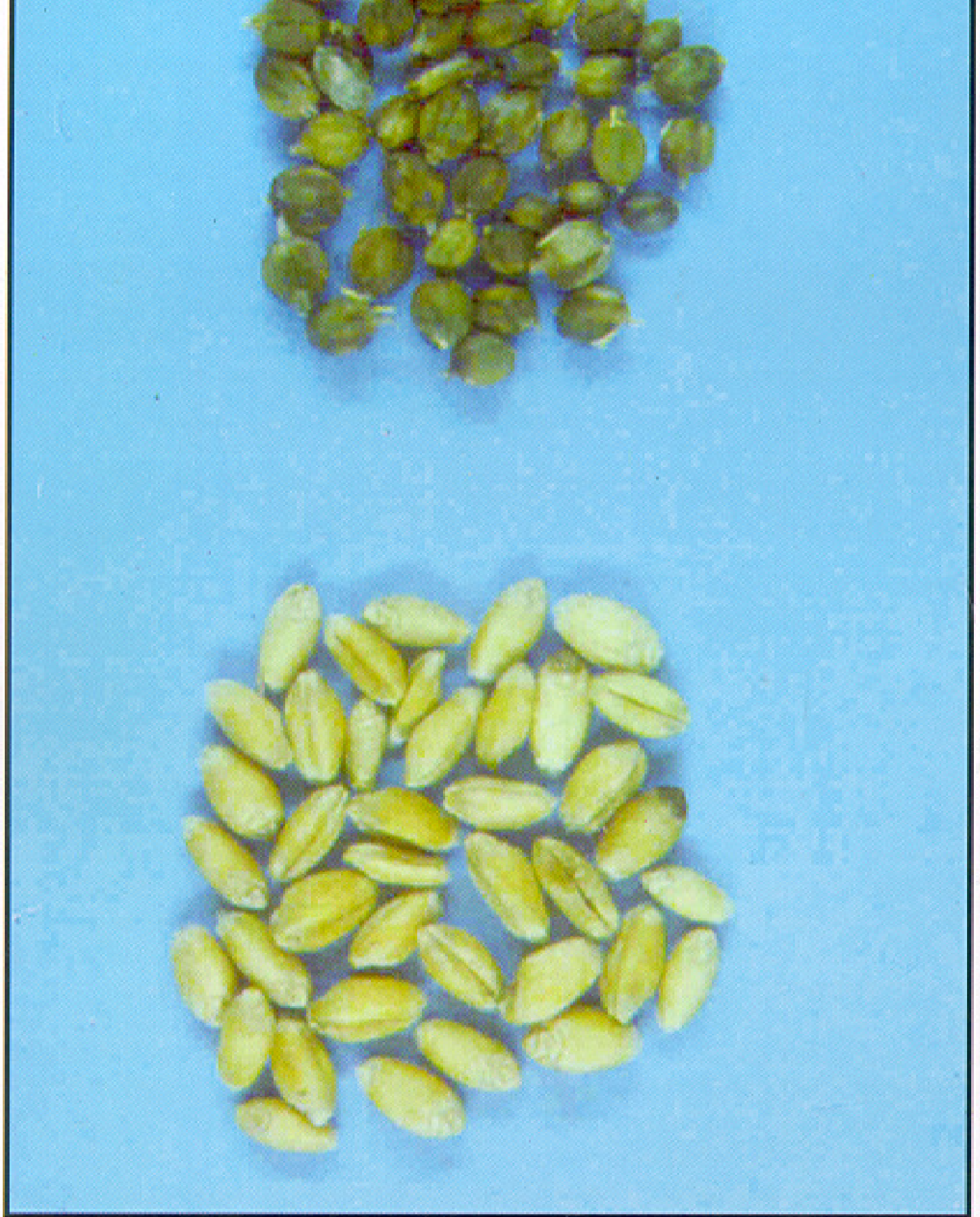
18°C
a
20°C



Cárie de trigo
Tilletia caries



5°C
a
10°C



Cárie de trigo
Tilletia caries



5°C
a
10°C



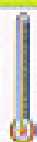
Cárie de trigo
Tilletia caries



5°C
a
10°C



Podridão da coroa de trigo
Sclerotium rolfsii



25°C
a
35°C

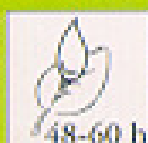




Podridão da base do colmo de trigo

Gibberella zeae

Fusarium graminearum





Podridão comum das raízes de trigo
Cochliobolus sativus
Bipolaris sorokiniana



18°C
a
25°C





Mal-do-pé de trigo
Gaeumannomyces graminis var. *tritici*



12°C
a
18°C





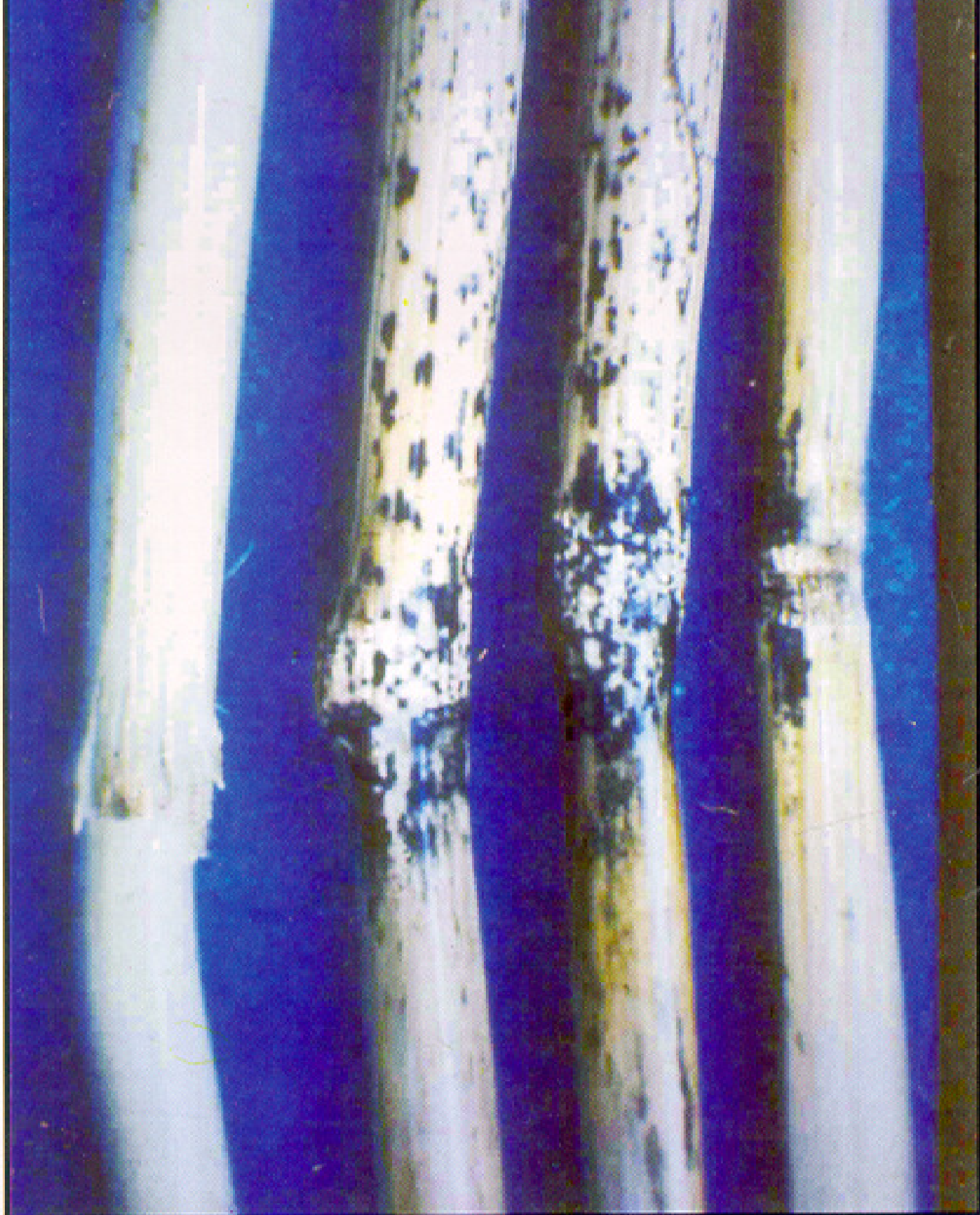
Mal-do-pé de trigo

Gaeumannomyces graminis var. *tritici*



12°C
a
18°C





Antracnose de trigo
Glomerella graminicola
Colletotrichum graminicola



25°C





Vírus do Nanismo Amarelo da Cevada de trigo
(BYDV)



Abaixo
de
19°C



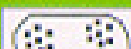
Vírus do Nanismo Amarelo da Cevada de trigo
(BYDV)





Vírus do Nanismo Amarelo da Cevada de trigo
(BYDV)

Abaixo
de
19°C





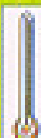
Vírus do Nanismo Amarelo da Cevada de trigo
(BYDV)

 Abaixo
de
19°C

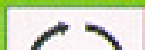




Vírus do Mosaico de Trigo (SBWV)

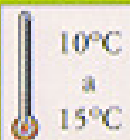


10°C
a
15°C

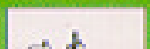




Vírus do Mosaico de Trigo (SBWV)



10°C
a
15°C





Vírus do Mosaico de Trigo
(SBWV)

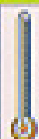


10°C
a
15°C





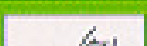
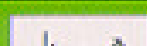
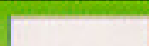
Mancha estriada da folha de trigo
Xanthomonas translucens



26°C



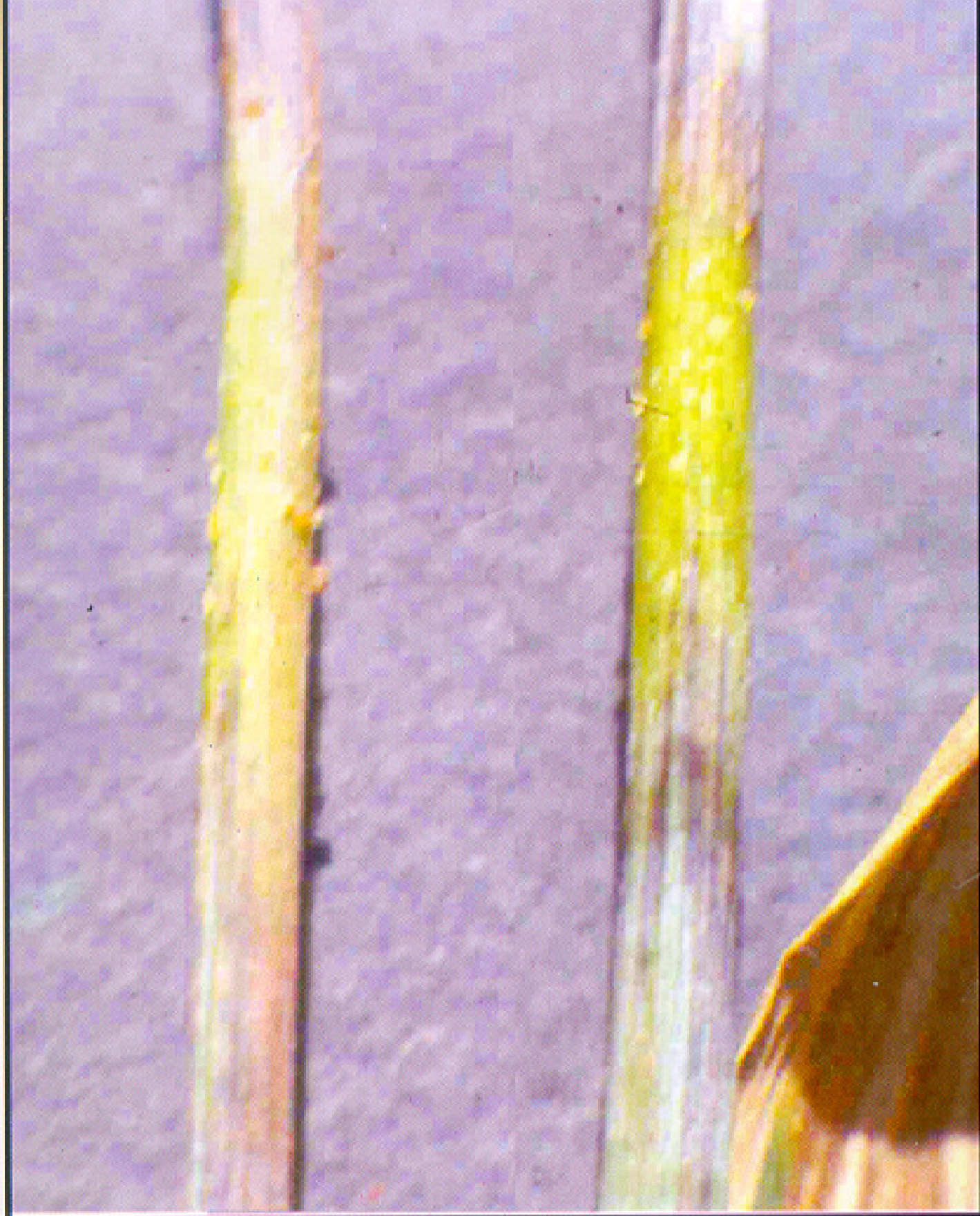
48-72 h





Mancha estriada da folha de trigo
Xanthomonas translucens





Mancha estriada da folha de trigo
Xanthomonas translucens



26°C



48-72 h





Mancha estriada da folha de trigo
Xanthomonas translucens



26°C

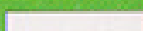


48-72 h





Branqueamento da folha de trigo
Pseudomonas syringae





Branqueamento da folha de trigo
Pseudomonas syringae





Queima da bainha de trigo
Pseudomonas fuscovaginae



A horizontal bar with a light green background. It contains the thermometer icon and temperature range on the left, and the leaf icon and infection period on the right.

A horizontal bar with a dark green background. It contains several small, partially visible icons: a leaf, a circular arrow, and a cluster of dots.



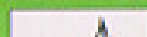
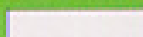
Queima da bainha de trigo
Pseudomonas fuscovaginae



10°C
a
15°C



48-72 h



Doenças em cevada

- Oídio de cevada (*Blumeria graminis* f.sp. *hordei*)
- Ferrugem da folha de cevada (*Puccinia hordei*)
- Ferrugem do colmo de cevada (*Puccinia graminis* f.sp. *tritici*)
- Mancha da gluma de cevada (*Phaeosphaeria nodorum*)
- Mancha marrom de cevada (*Cochliobolus sativus*)
- Mancha-em-rede da folha de cevada (*Pyrenophora teres*)
- Escaldadura da folha de cevada (*Rhynchosporium secalis*)
- Giberela de cevada (*Gibberella zeae*)
- Brusone de cevada (*Magnaporthe grisea*)
- Carvão coberto de cevada (*Ustilago hordei*)
- Carvão descoberto de cevada (*Ustilago nuda*)
- Podridão comum das raízes de cevada (*Cochliobolus sativus*)
- Mal-do-pé de cevada (*Gaeumannomyces graminis* var. *tritici*)
- Vírus do nanismo amarelo de cevada (BYDV)
- Mancha estriada de cevada (*Xanthomonas translucens*)



Oídio de cevada

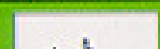
Blumeria graminis f.sp. *hordei*

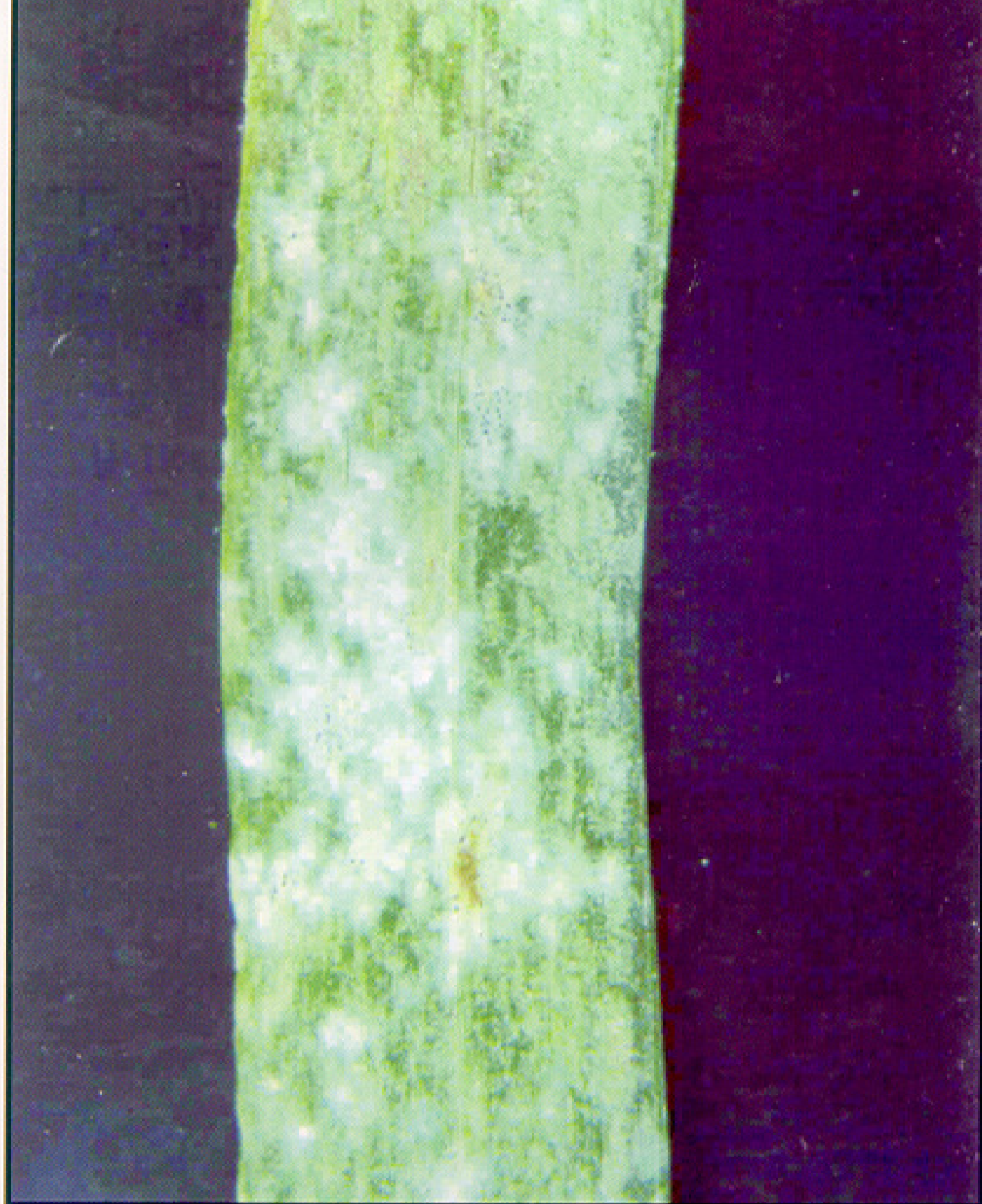


15°C

a

22°C





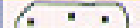
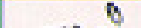
Oídio de cevada
Blumeria graminis f.sp. *hordei*

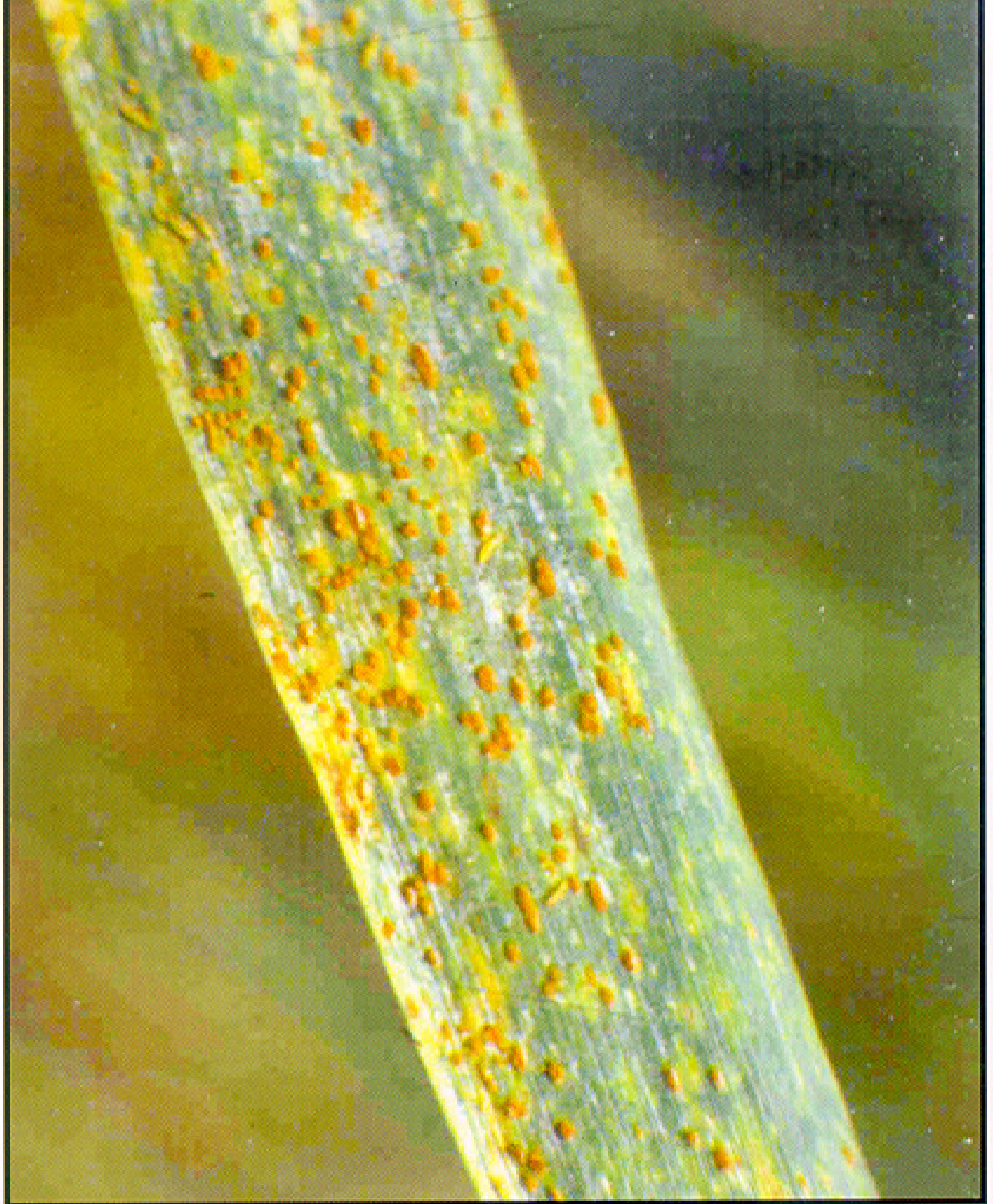
15°C
a
22°C

15°C

a

22°C





Ferrugem da folha de cevada
Puccinia hordei





Ferrugem do colmo de cevada

Puccinia graminis f.sp. *tritici*



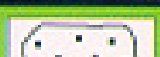
19°C

a

22°C



6-8 h





Ferrugem do colmo de cevada
Puccinia graminis f.sp. *tritici*



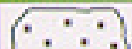
19°C

a

22°C



6-8 h

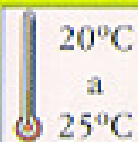




Mancha da gluma de cevada

Phaeosphaeria nodorum

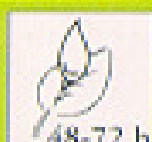
Stagonospora nodorum



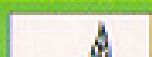
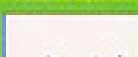
20°C

a

25°C



48-72 h





Mancha da gluma de cevada

Phaeosphaeria nodorum

Stagonospora nodorum



20°C

a

25°C

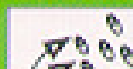
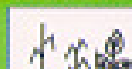
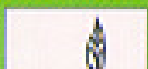
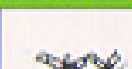
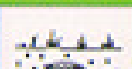
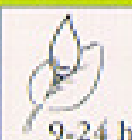
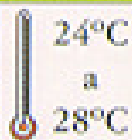


48-72 h





Mancha marrom de cevada
Cochliobolus sativus
Bipolaris Sorokiniana

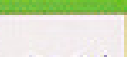
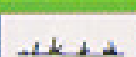




Mancha marrom de cevada

Cochliobolus sativus

Bipolaris Sorokiniana





Mancha marrom de cevada

Cochliobolus sativus

Bipolaris Sorokiniana



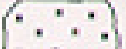
24°C

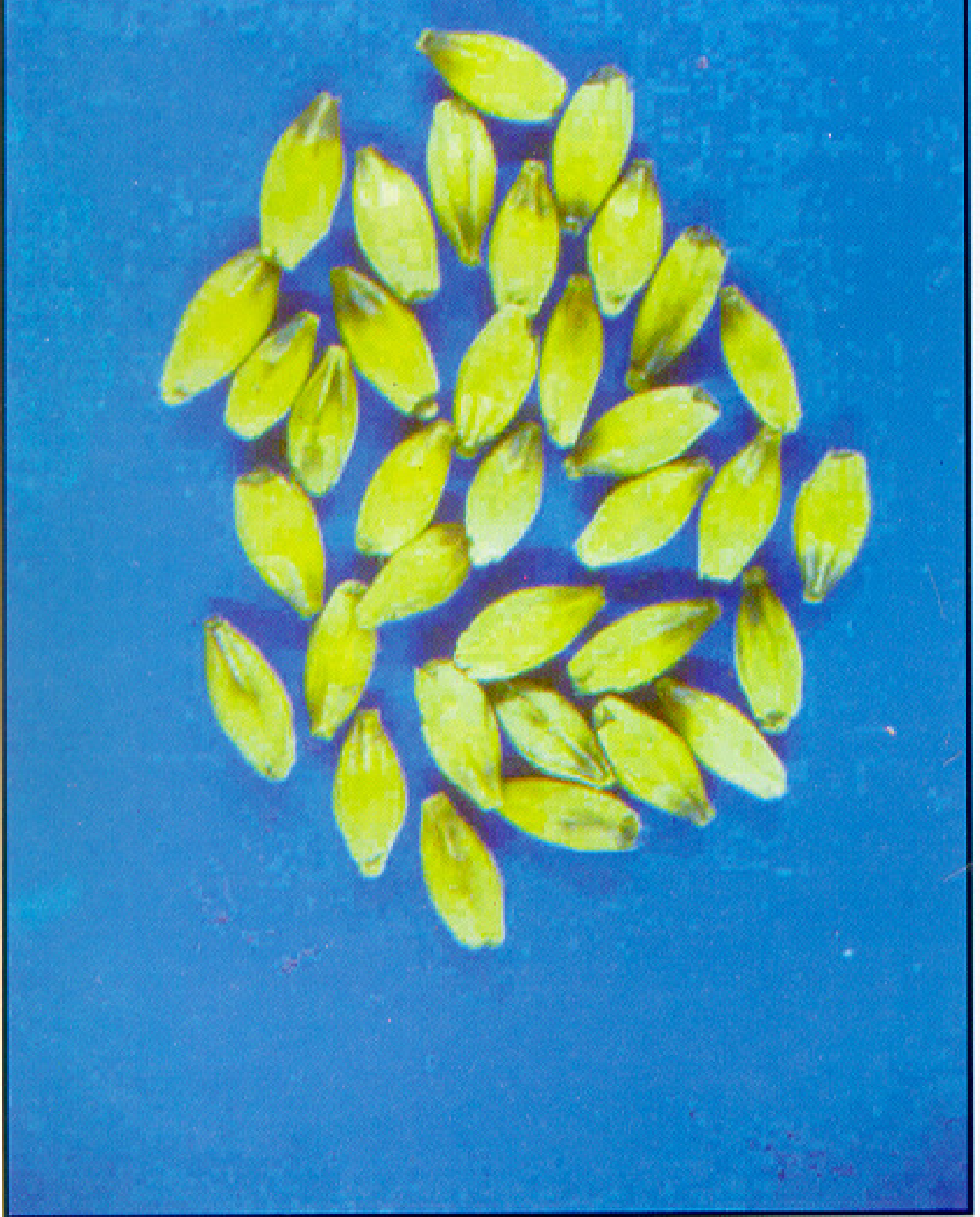
a

28°C



9-24 h





Mancha marrom de cevada

Cochliobolus sativus

Bipolaris Sorokiniana





Mancha-em-rede da folha de cevada

Pyrenophora teres

Drechslera teres



8°C

a

33°C



24-48 h

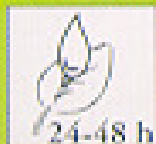
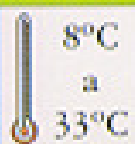


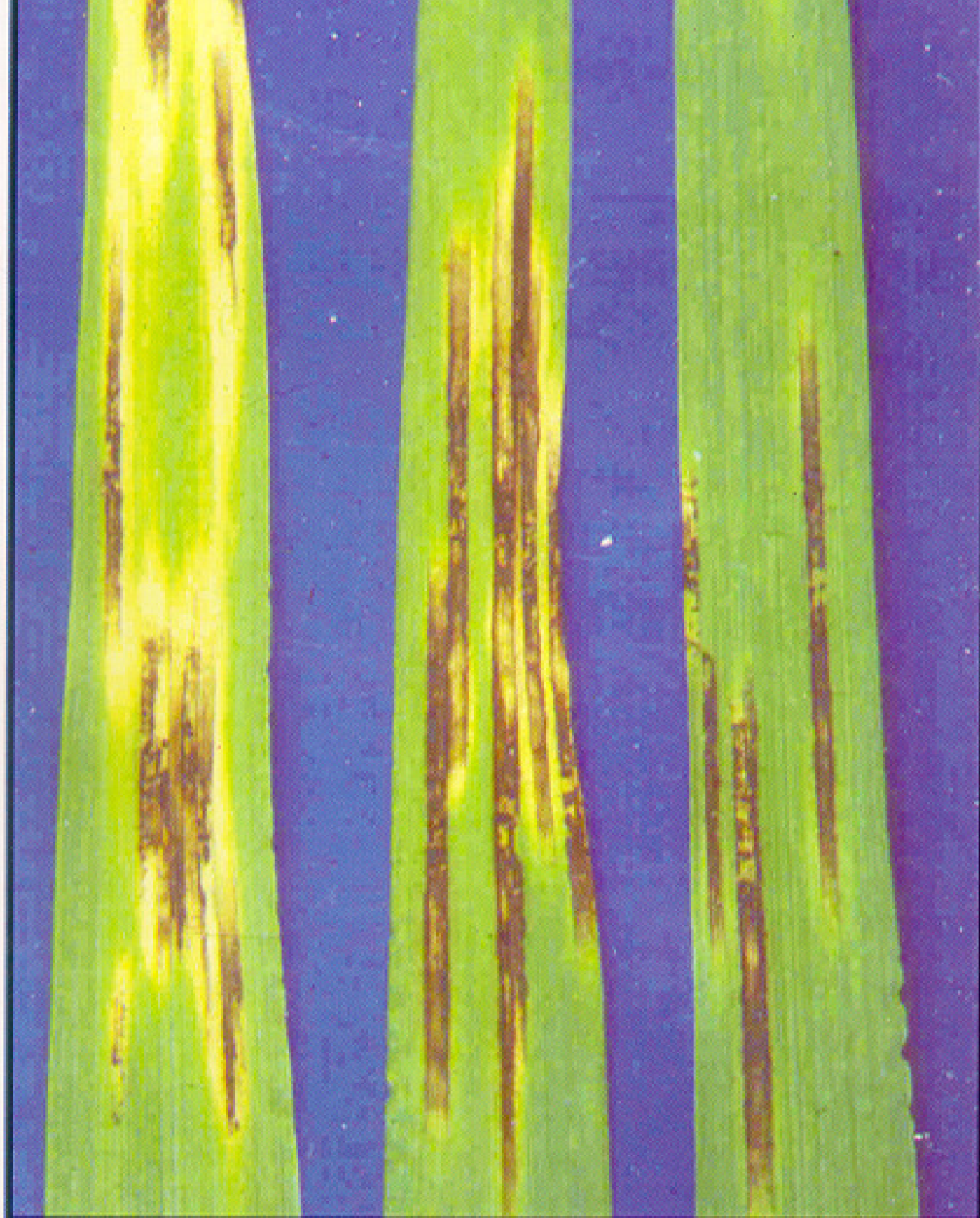


Mancha-em-rede da folha de cevada

Pyrenophora teres

Drechslera teres





Mancha-em-rede da folha de cevada

Pyrenophora teres

Drechslera teres



8°C
a
33°C



24-48 h

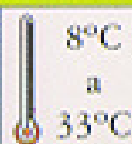




Mancha-em-rede da folha de cevada

Pyrenophora teres

Drechslera teres



8°C

a

33°C



24-48 h





Escaldadura da folha de cevada

Rynchosporium secalis



15°C

a

20°C



24-48 h





Giberela de cevada

Gibberella zeae

Fusarium graminearum



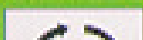
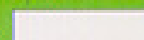
24°C

a

30°C



48-60 h





Giberela de cevada

Gibberella zeae

Fusarium graminearum



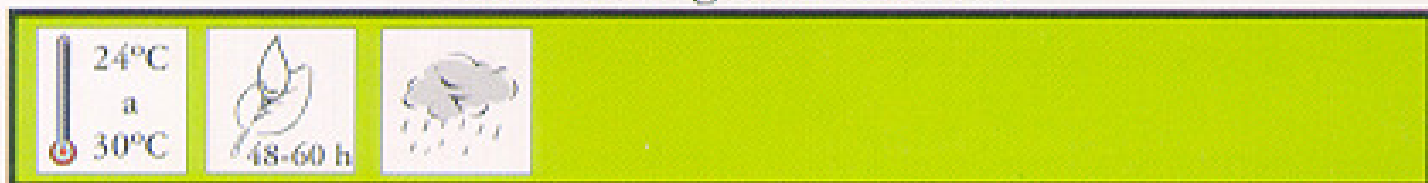
24°C

a

30°C



48-60 h

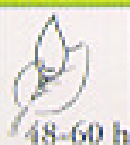




Giberela de cevada

Gibberella zeae

Fusarium graminearum





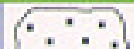
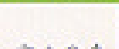
Giberela de cevada

Gibberella zeae

Fusarium graminearum



48-60 h

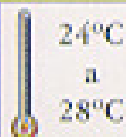




Brusone de cevada

Magnaporthe grisea

Pyricularia grisea



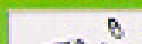
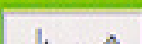
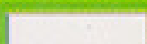
24°C

a

28°C



8-18 h





Brusone de cevada

Magnoportha grisea

Pyricularia grisea



24°C

a

28°C



8-18 h

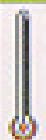




Brusone de cevada

Magnoportha grisea

Pyricularia grisea



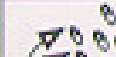
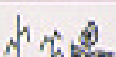
24°C

a

28°C

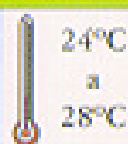


8-18 h





Brusone de cevada
Magnoportha grisea
Pyricularia grisea



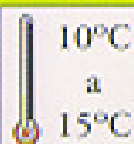
24°C
a
28°C



8-18 h



Carvão coberto de cevada
Ustilago hordei



10°C

a

15°C

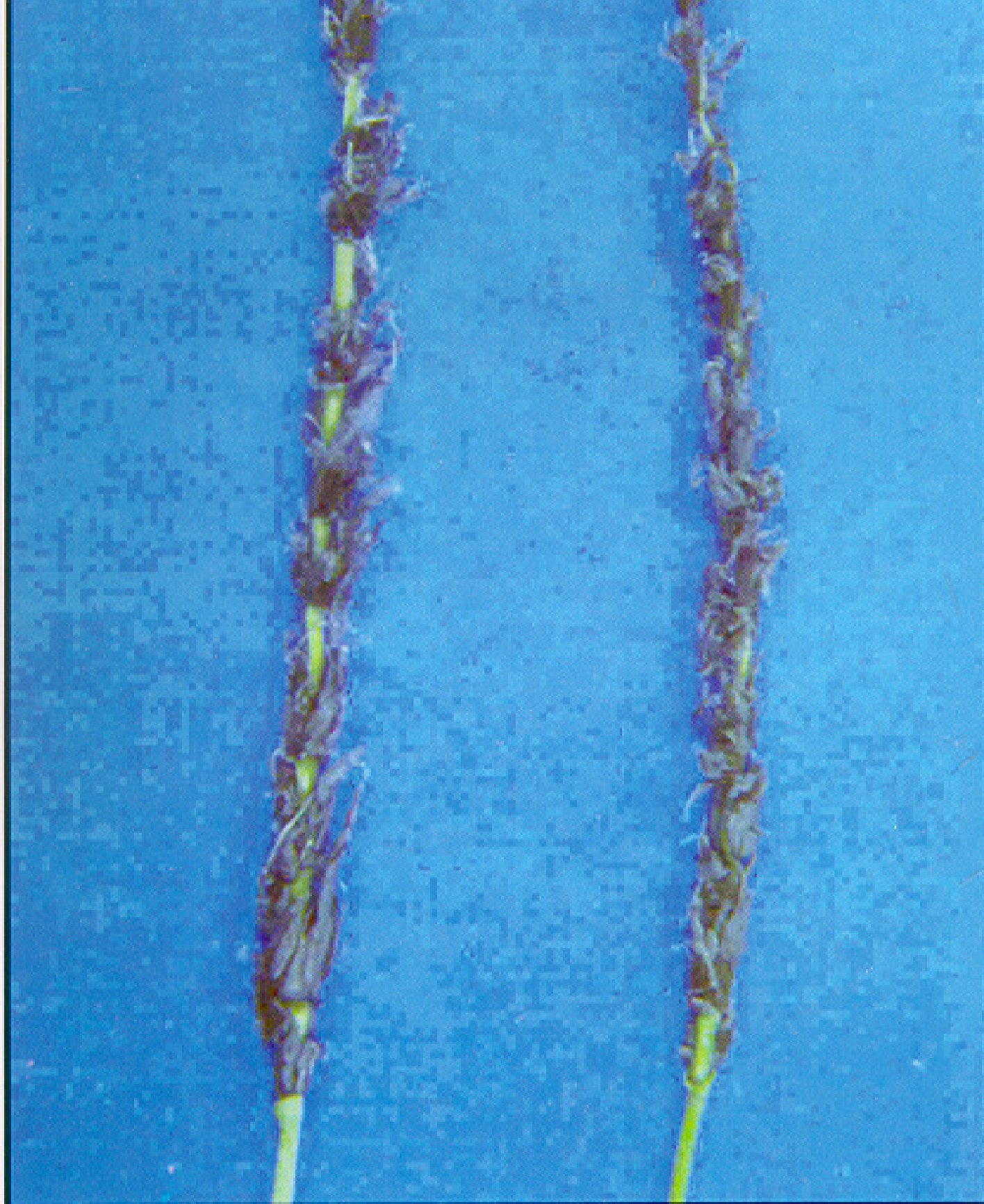




Carvão coberto de cevada
Ustilago hordei



10°C
a
15°C



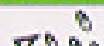
Carvão descoberto de cevada
Ustilago nuda



10°C

a

15°C

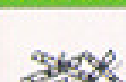




Podridão comum das raízes de cevada
Cochliobolus sativus
Bipolaris sorokiniana



18°C
a
25°C





Mal-do-pé de cevada
Gaeumannomyces graminis var. *tritici*




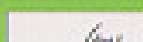
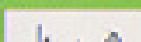
12°C
a
18°C





Vírus do Nanismo Amarelo de Cevada (BYDV)

 Abaixo
de
19°C





Vírus do Nanismo Amarelo de Cevada
(BYDV)



Abaixo
de
19°C



Vírus do Nanismo Amarelo de Cevada (BYDV)



Abaixo
de
19°C



Mancha estriada da folha de cevada
Xanthomonas translucens



26°C



48-72 h



Mancha estriada da folha de cevada
Xanthomonas translucens



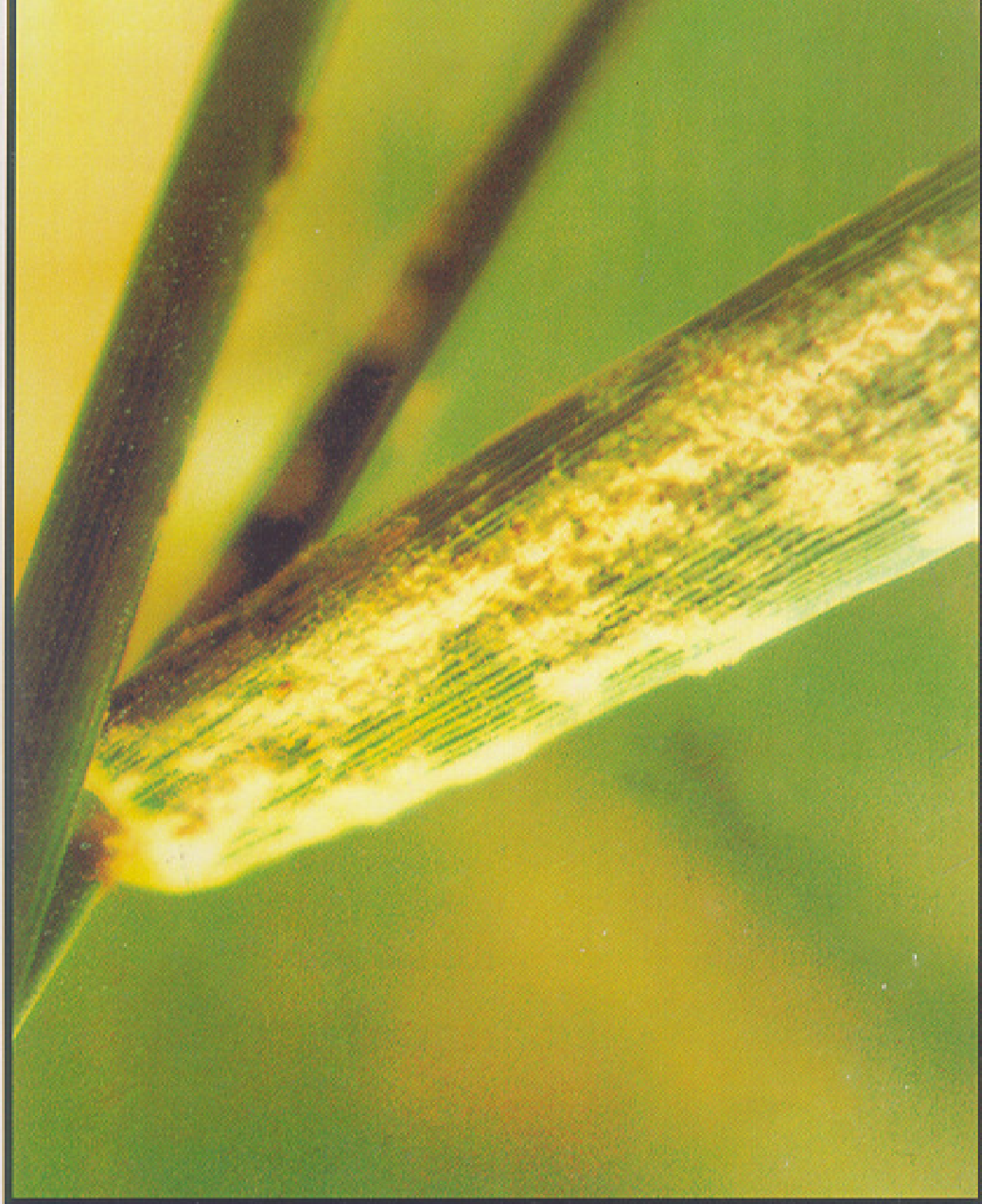
26°C



48-72 h

Doenças em triticales

- Oídio de triticales (*Blumeria graminis* f.sp. *tritici*)
- Ferrugem da folha de triticales (*Puccinia triticina*)
- Ferrugem do colmo de triticales (*Puccinia graminis* f.sp. *tritici*)
- Mancha marrom da folha de triticales (*Cochliobolus sativus*)
- Mancha da gluma de triticales (*Phaeosphaeria nodorum*)
- Mancha bronzeada da folha de triticales (*Pyrenophora tritici-repentis*)
- Mancha aquosa de triticales (*Calonectria nivalis*)
- Giberela de triticales (*Gibberella zeae*)
- Brusone de triticales (*Magnaporthe grisea*)
- Carvão de triticales (*Ustilago tritici*)
- Ergotismo de triticales (*Claviceps purpurea*)
- Podridão comum das raízes de triticales (*Cochliobolus sativus*)
- Mal-do-pé de triticales (*Gaeumannomyces graminis* var. *tritici*)
- Podridão da coroa de triticales (*Sclerotium rolfsii*)
- Vírus do nanismo amarelo da cevada de triticales (BYDV)
- Vírus do mosaico comum de triticales (SBWV)
- Branqueamento da folha de triticales (*Pseudomonas syringae*)
- Mancha estriada da folha de triticales (*Xanthomonas translucens*)



Oídio de triticales
Blumeria graminis f.sp. *tritici*





Oídio de triticales
Blumeria graminis f.sp. *tritici*

15°C
a
22°C

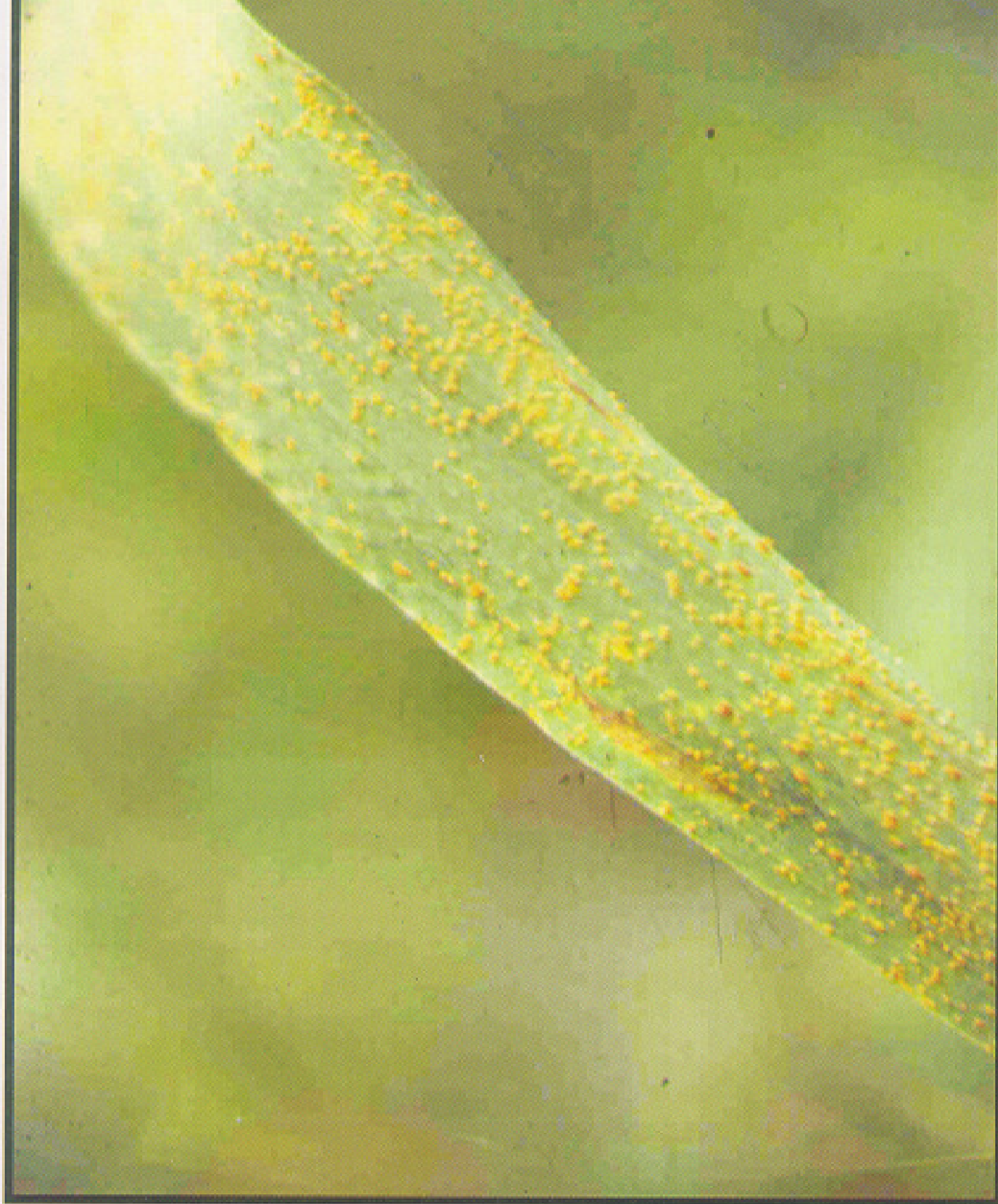


Ferrugem da folha de triticales

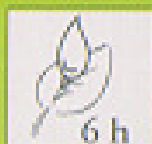
Puccinia triticina

16°C
a
18°C

6 h

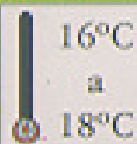


Ferrugem da folha de triticales
Puccinia triticina





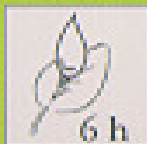
Ferrugem do colmo de triticales
Puccinia graminis f.sp. *tritici*



16°C

a

18°C



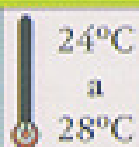
6 h



Mancha marrom da folha de triticales

Cochliobolus sativus

Bipolaris sorokiniana



24°C

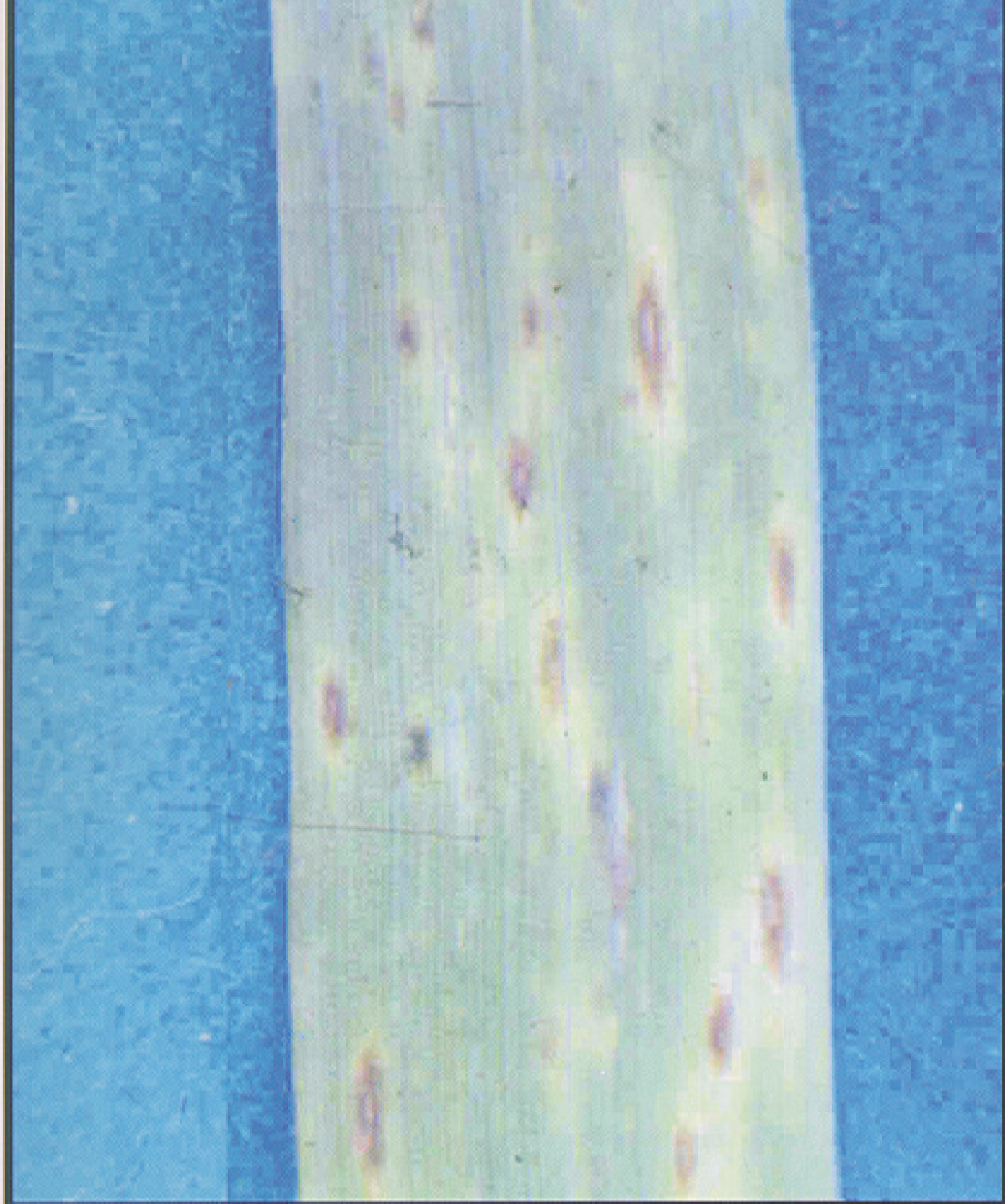
a

28°C



9-24 h



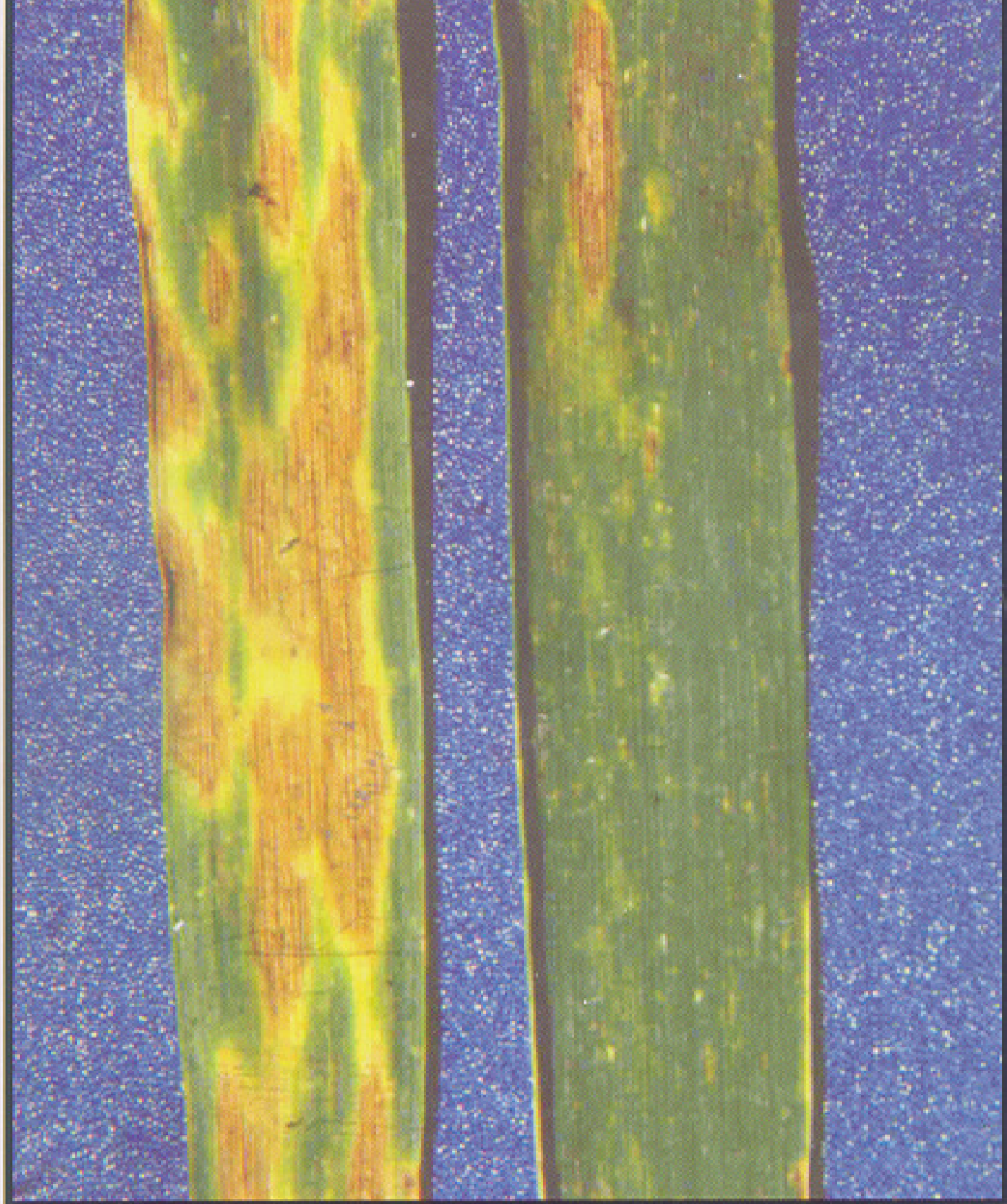


Mancha marrom da folha de triticales

Cochliobolus sativus

Bipolaris sorokiniana



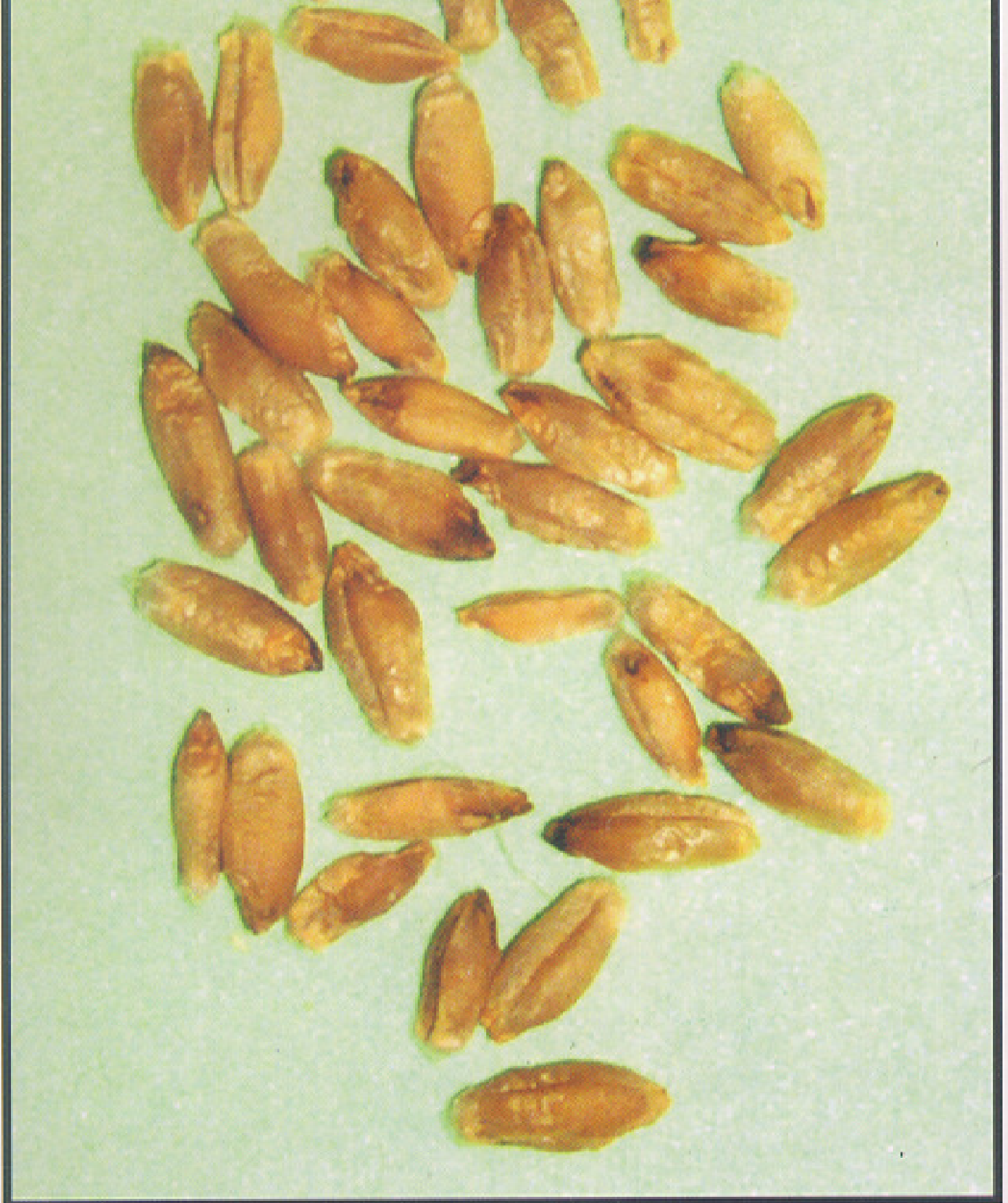


Mancha marrom da folha de triticales

Cochliobolus sativus

Bipolaris sorokiniana





Mancha marrom da folha de triticales

Cochliobolus sativus

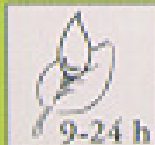
Bipolaris sorokiniana



24°C

a

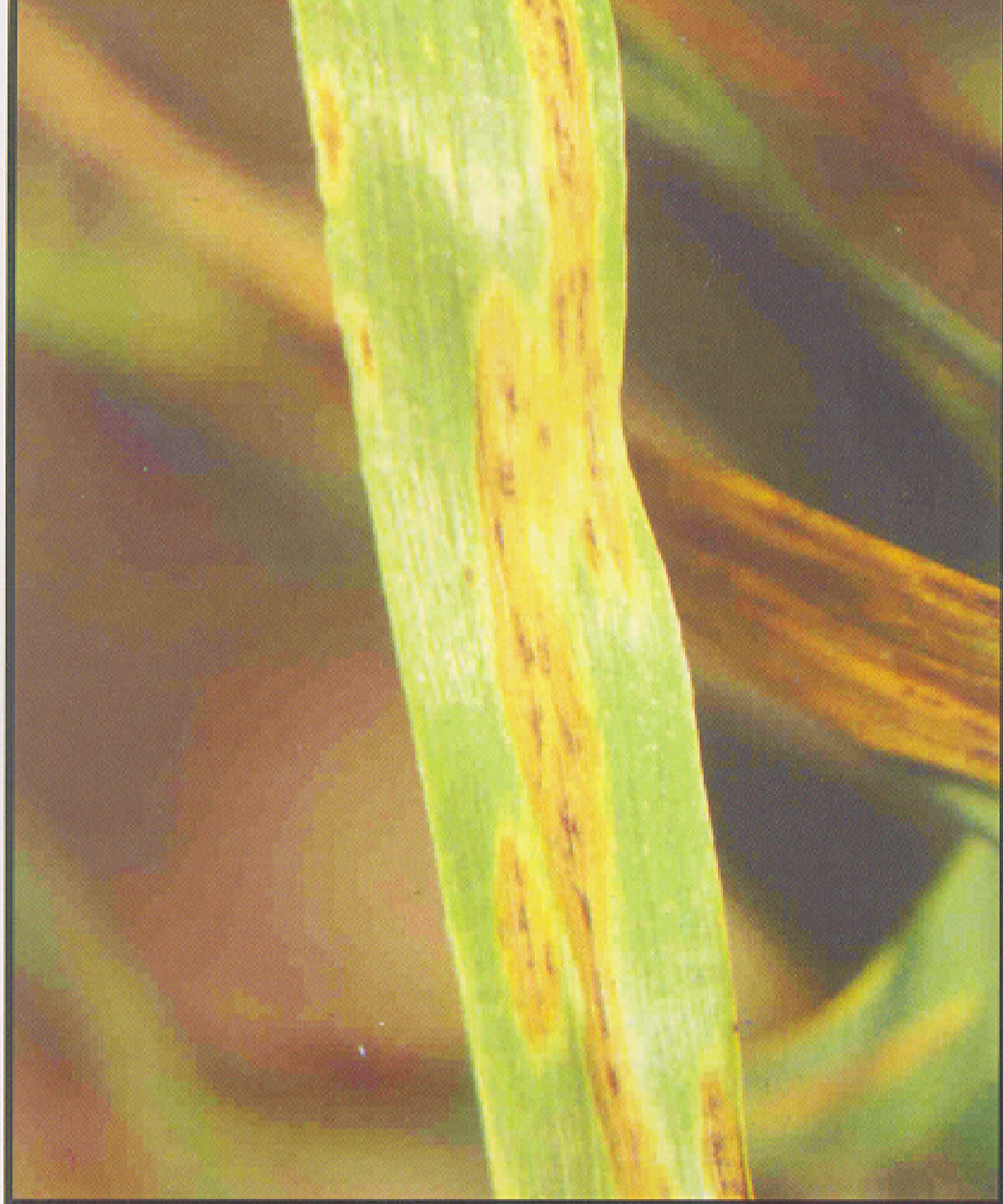
28°C



9-24 h



Cochliobolus sativus



Mancha da gluma de triticales

Phaeosphaeria nodorum

Stagonospora nodorum



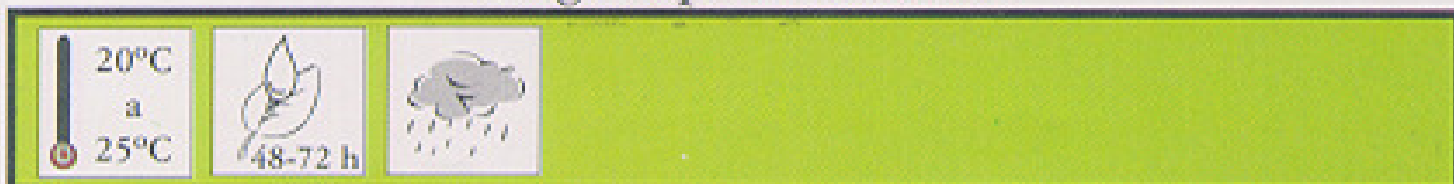
20°C

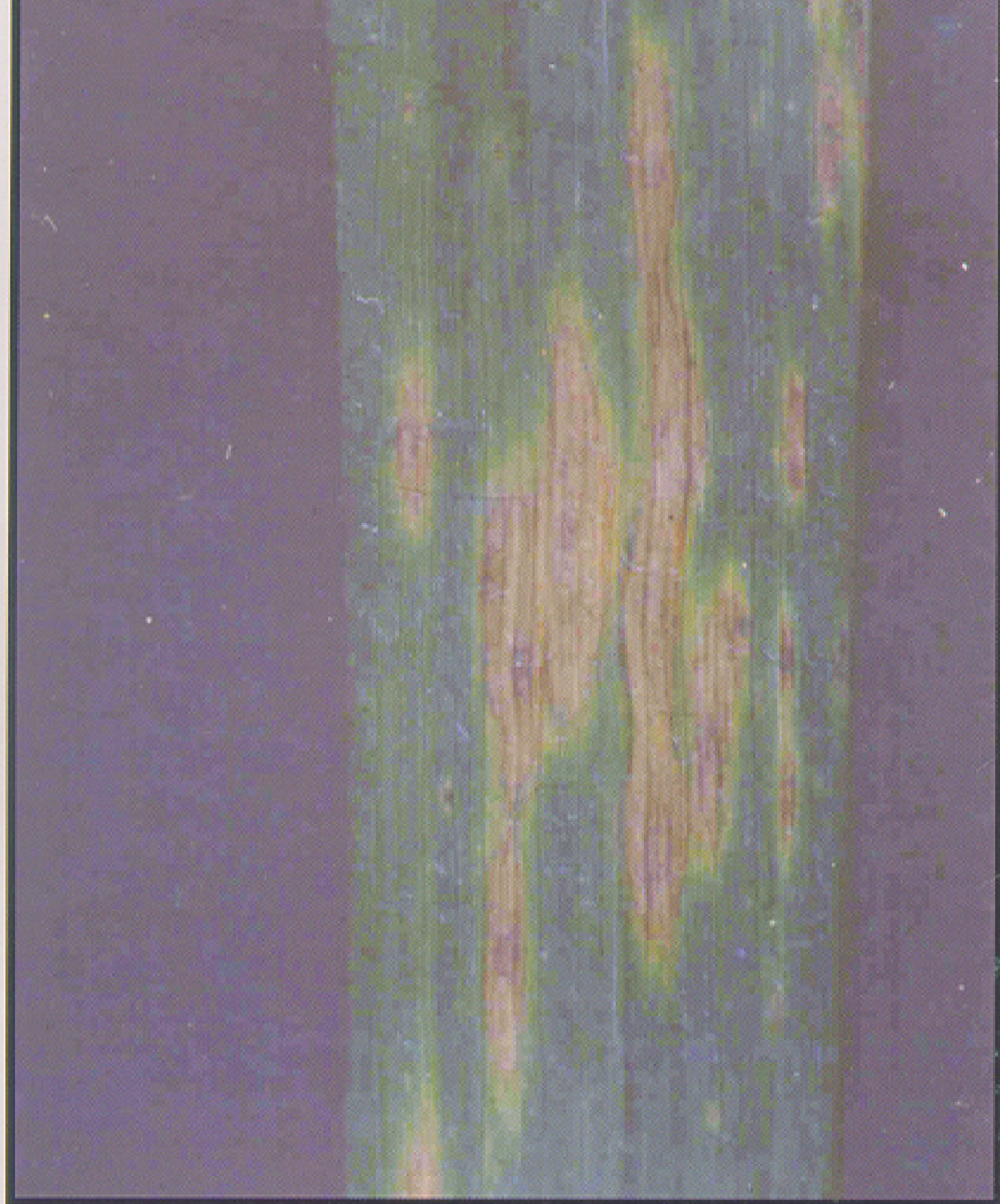
a

25°C



48-72 h





Mancha da gluma de triticales

Phaeosphaeria nodorum

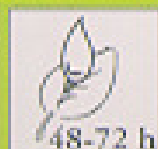
Stagonospora nodorum



20°C

a

25°C



48-72 h





Mancha da gluma de triticales

Phaeosphaeria nodorum

Stagonospora nodorum



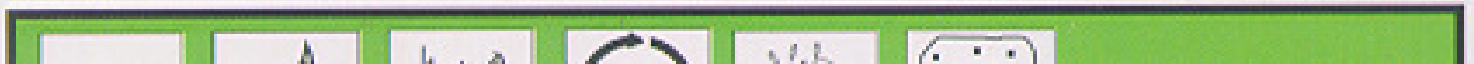
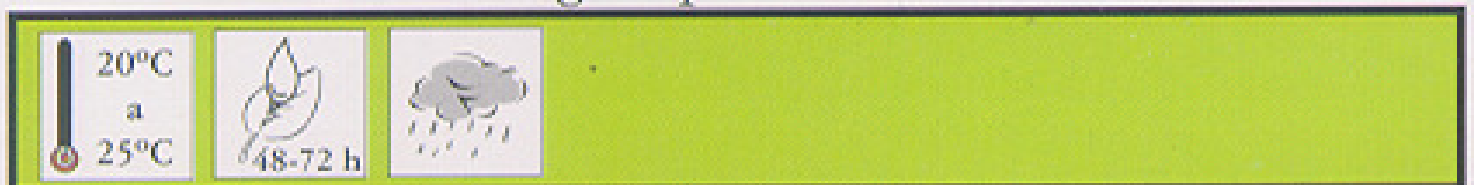
20°C

a

25°C

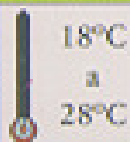


48-72 h





Mancha bronzeada da folha de triticales
Pyrenophora tritici-repentis
Drechslera tritici-repentis



18°C
a
28°C











24-48 h

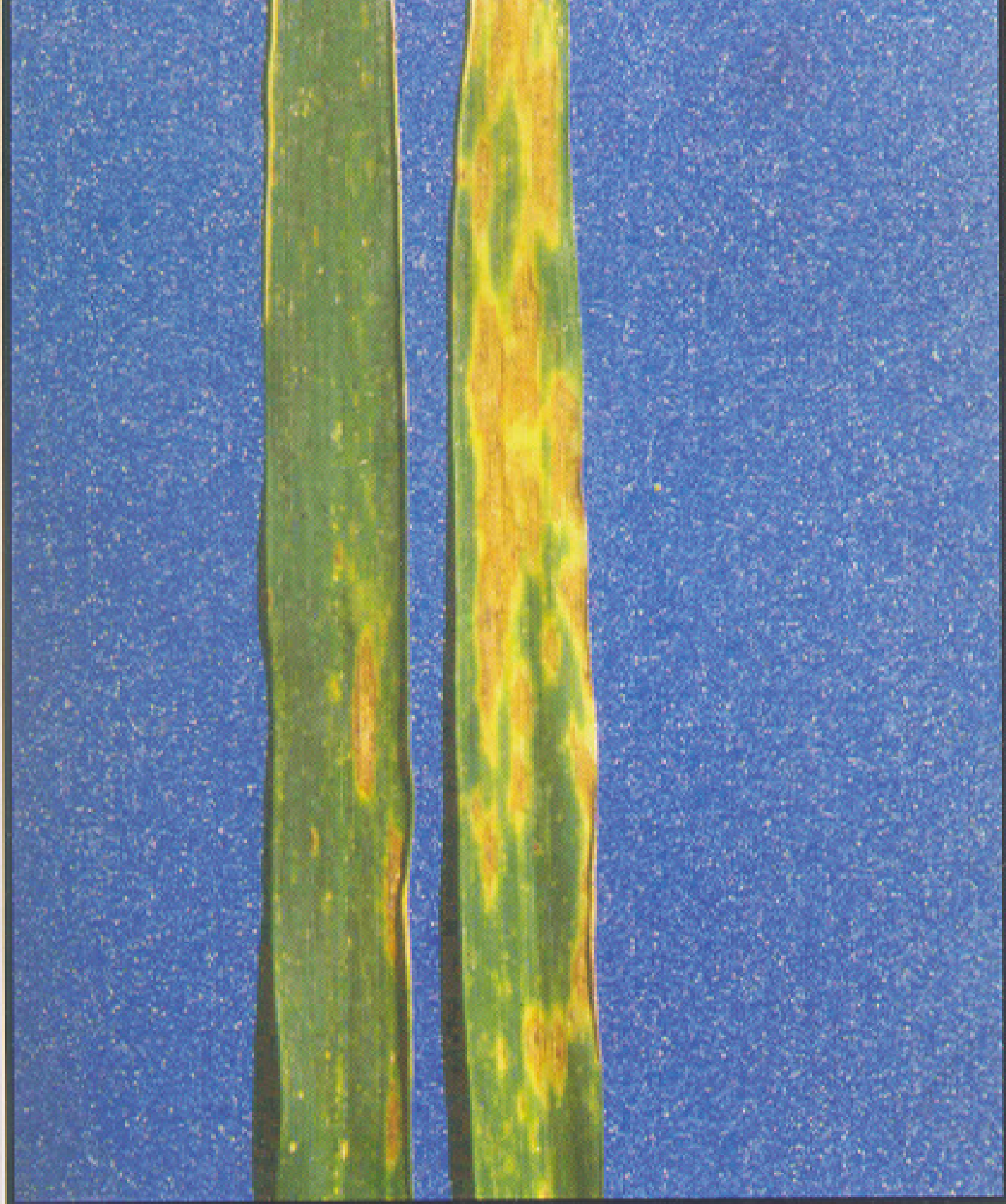




Mancha bronzeada da folha de triticales
Pyrenophora tritici-repentis
Drechslera tritici-repentis

 <p>18°C a 28°C</p>	 <p>24-48 h</p>	
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Mancha bronzeada da folha de triticales
Pyrenophora tritici-repentis
Drechslera tritici-repentis



18°C
a
28°C

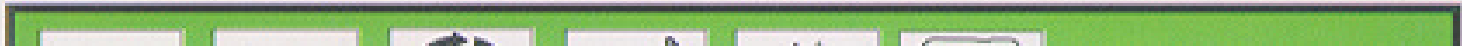
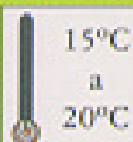


24-48 h



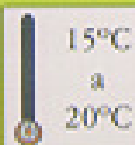


Mancha aquosa de triticales
Calonectria nivalis
Gerlachia nivalis



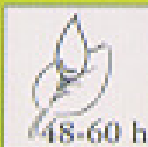
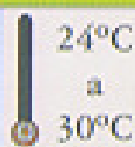


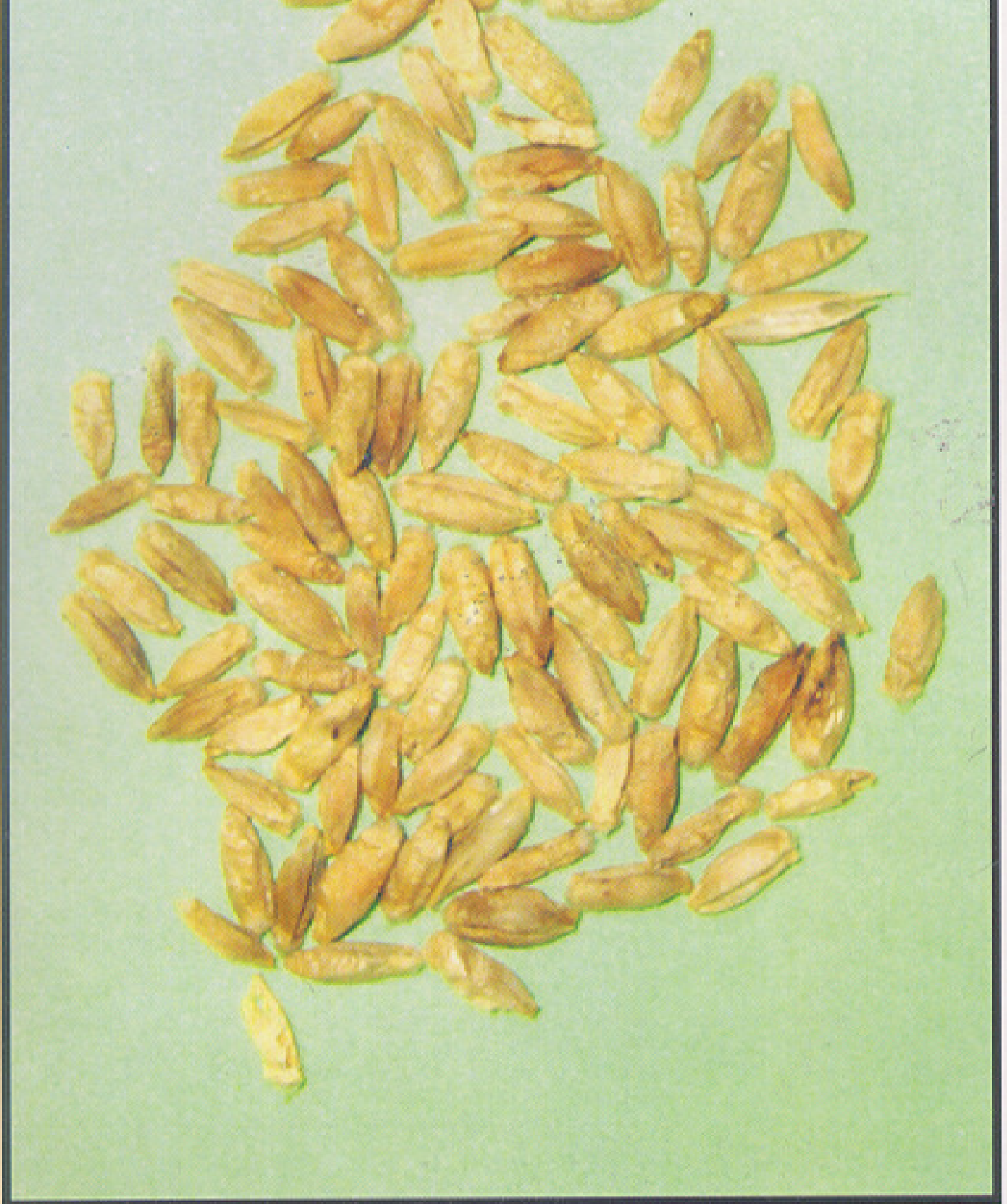
Mancha aquosa de triticales
Calonectria nivalis
Gerlachia nivalis





Giberela de triticales
Gibberella zeae
Fusarium graminearum





Giberela de triticales

Gibberella zeae

Fusarium graminearum



24°C

a

30°C



48-60 h





Brusone de triticales

Magnaporthe grisea

Pyricularia grisea





Carvão de triticales
Ustilago tritici

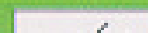
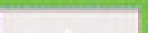


18°C



Ergotismo de triticales
Claviceps purpurea

18°C
a
30°C





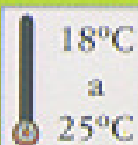
Ergotismo de triticales
Claviceps purpurea

18°C
a
30°C





Podridão comum das raízes de triticales
Cochliobolus sativus
Bipolaris sorokiniana

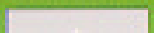
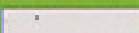




Mal-do-pé de triticales

Gaeumannomyces graminis var. *tritici*

12°C
a
18°C





Mal-do-pé de triticales

Gaeumannomyces graminis var. *tritici*





Podridão da coroa de triticales
Sclerotium rolfsii



25°C
a
35°C





Vírus no Nanismo Amarelo da
Cevada de triticales (BYDV)

Abaixo
de
19°C



Vírus no Nanismo Amarelo da
Cevada de triticales (BYDV)

Abaixo
de
19°C



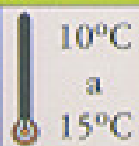
Vírus no Nanismo Amarelo da
Cevada de triticales (BYDV)

Abaixo
de
19°C





Vírus do Mosaico Comum de triticales
(SBWV)





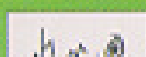
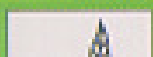
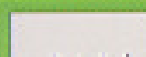
Vírus do Mosaico Comum de triticales
(SBWV)






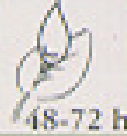

Branqueamento da folha de triticales
Pseudomonas syringae








17°C
a
23°C

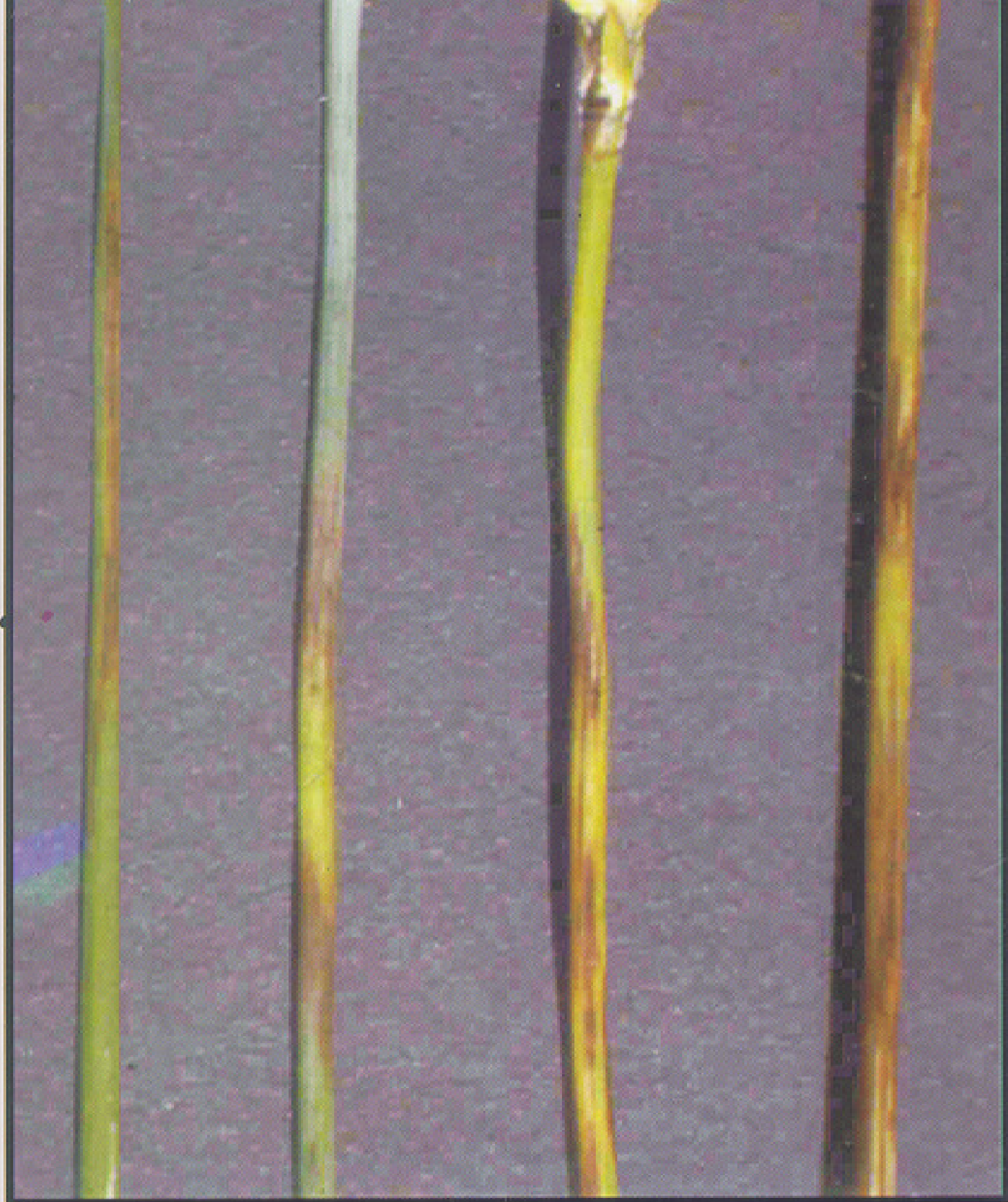




Mancha estriada da folha de triticales
Xanthomonas translucens

 26°C	 48-72 h	
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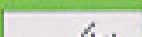
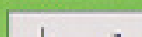
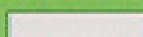
Mancha estriada da folha de triticales
Xanthomonas translucens

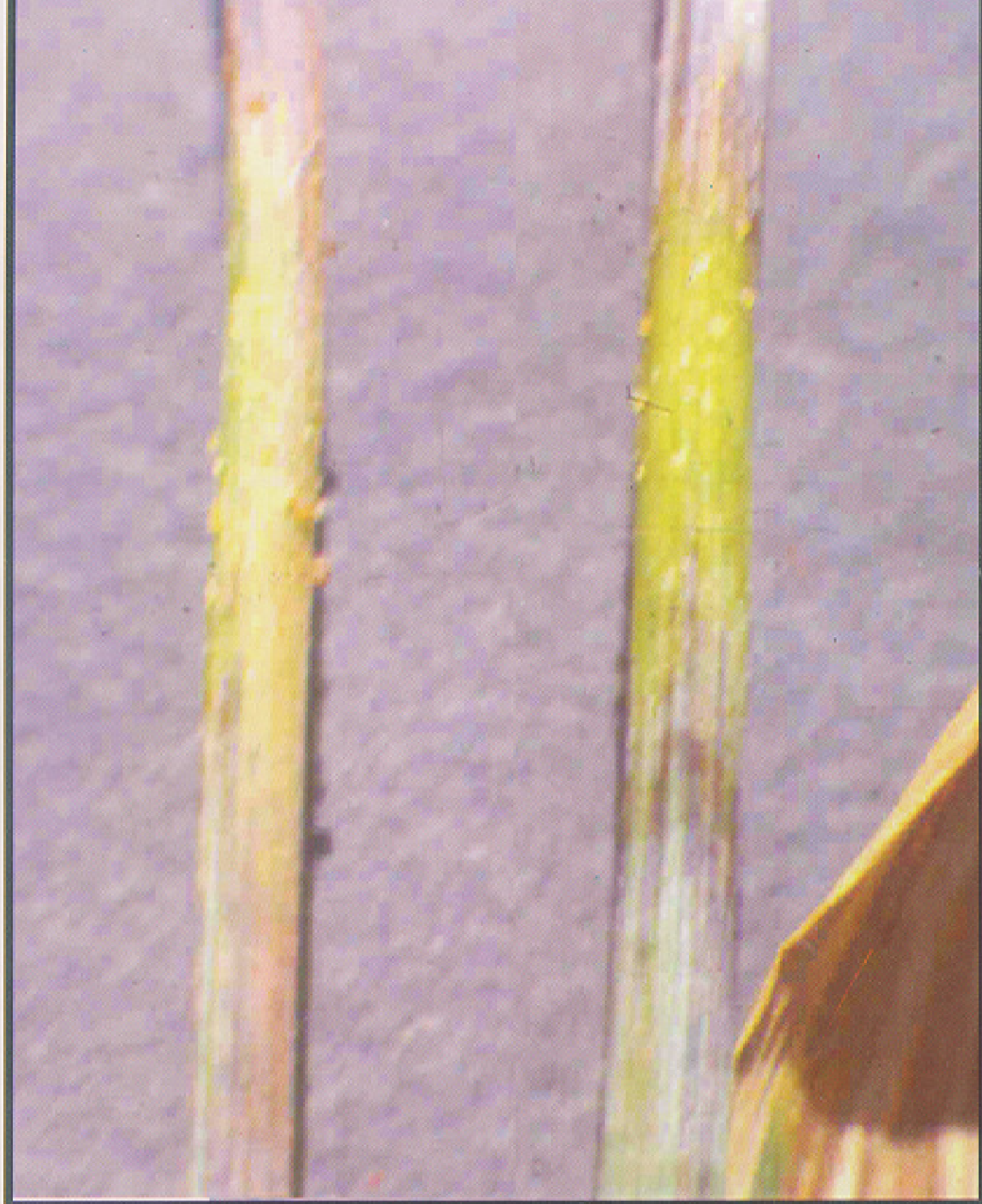


26°C



48-72 h





Mancha estriada da folha de triticales
Xanthomonas translucens



26°C



48-72 h





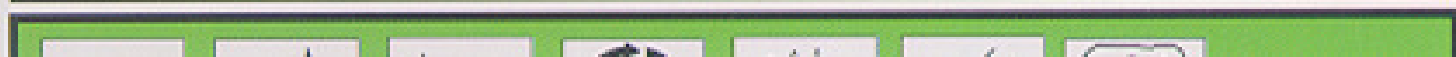
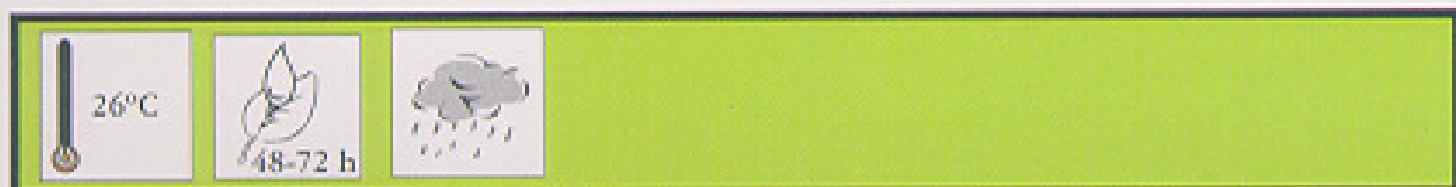
Mancha estriada da folha de triticales
Xanthomonas translucens



26°C



48-72 h



Doenças em aveia

Ferrugem da folha de aveia (*Puccinia coronata* f.sp. *avenae*)

Mancha da folha de aveia (*Pyrenophora avenae*)

Mancha marrom da folha de aveia (*Cochliobolus sativus*)

Giberela de aveia (*Gibberella zeae*)

Podridão da base do colmo de aveia (*Gibberella zeae*)

Brusone de aveia (*Magnaporthe grisea*)


Halo bacteriano de aveia (*Pseudomonas coronafaciens*)

Vírus do nanismo amarelo da cevada de aveia (BYDV)



Ferrugem da folha de aveia
Puccinia coronata f.sp. *avenae*

16°C
a
18°C

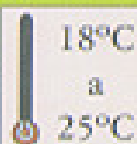

6 h



Mancha da folha de aveia

Pyrenophora avenae

Drechslera avenae



24-48 h

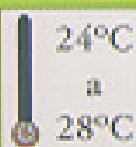




Mancha marrom da folha de aveia

Cochliobolus sativus

Bipolaris sorokiniana



24°C
a
28°C



9-24 h

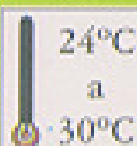




Giberela de aveia

Gibberella zeae

Fusarium graminearum



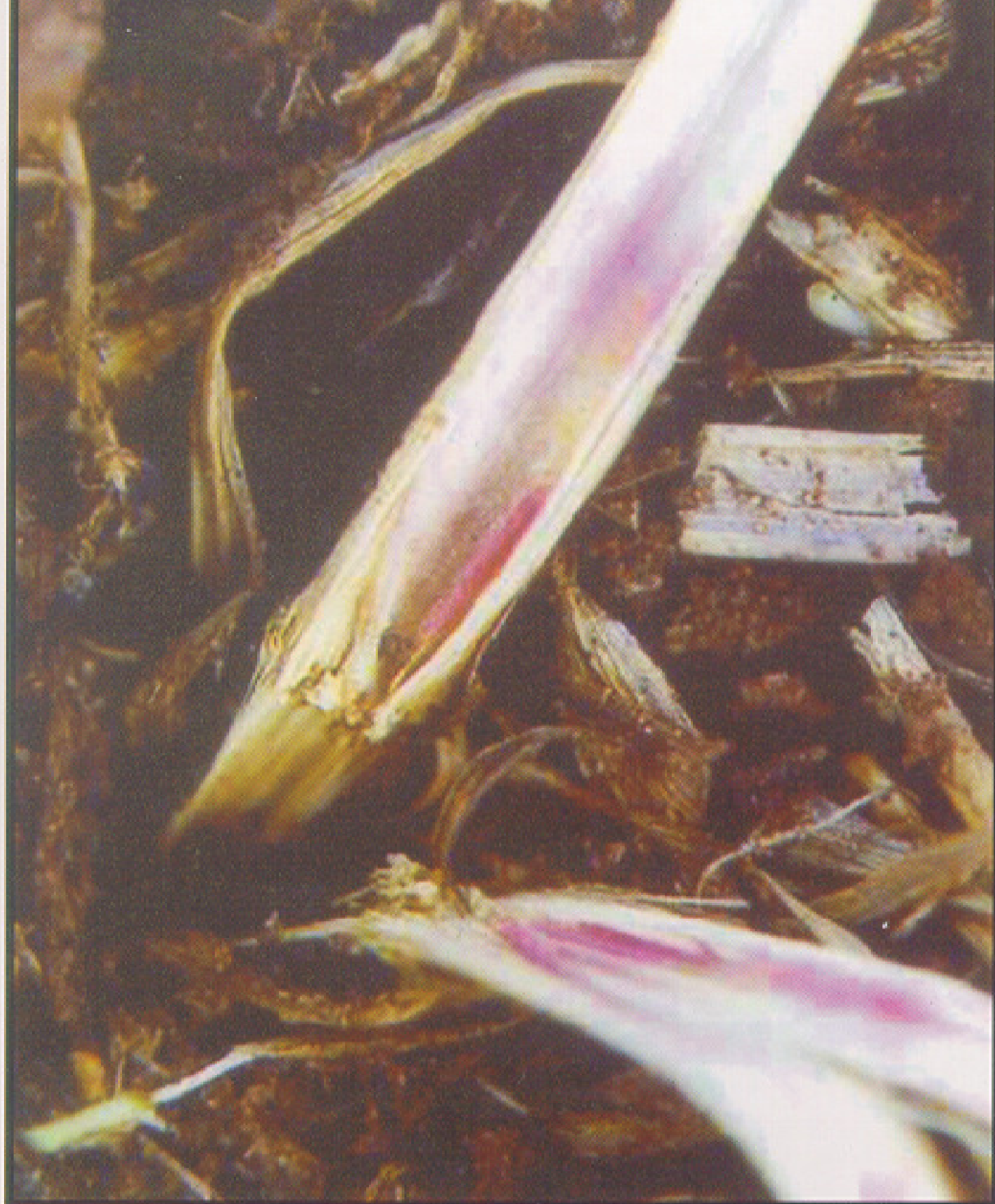


Giberela de aveia

Gibberella zeae

Fusarium graminearum

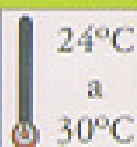




Podridão da base do colmo de aveia

Gibberella zeae

Fusarium graminearum

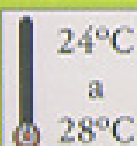




Brusone de aveia

Magnoportha grisea

Pyricularia grisea



24°C

a

28°C



8-18 h



Brusone de aveia
Magnoportha grisea
Pyricularia grisea





Brusone de aveia

Magnoportha grisea

Pyricularia grisea



24°C

a

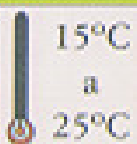
28°C



8-18 h



Halo bacteriano de aveia
Pseudomonas coronafaciens



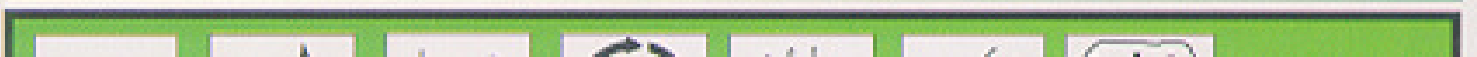
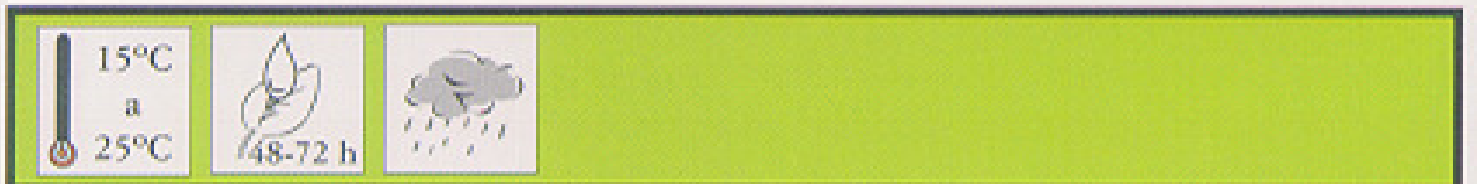
15°C

a

25°C



48-72 h





Vírus no Nanismo Amarelo da Cevada de aveia (BYDV)

Abaixo
de
19°C



Distúrbios abióticos

Manchas amareladas em plântulas (Injúria causada por frio)

Dano por geada

Queima da ponta da folha (Dano causado por vento)

Necrose de ponta de folha (Associado à presença do gene Lr 34)

Salpicamento (Reação de hipersensibilidade)

Melanismo (Sintoma causado por alta radiação e umidade)

Mancha chocolate de cevada (Distúrbio fisiológico)

Debulha da espiga (Dano provocado por pássaros)

Espiga presa (Dano causado por vento)

Deformação de espiga (Dano provocado por herbicidas)

Deformação de espiga (Dano provocado por percevejos)



Manchas amareladas em plântulas
Injúria causada por frio



Dano por geada



Dano por geada



Dano por geada



Dano por geada



Dano por geada



Dano por geada



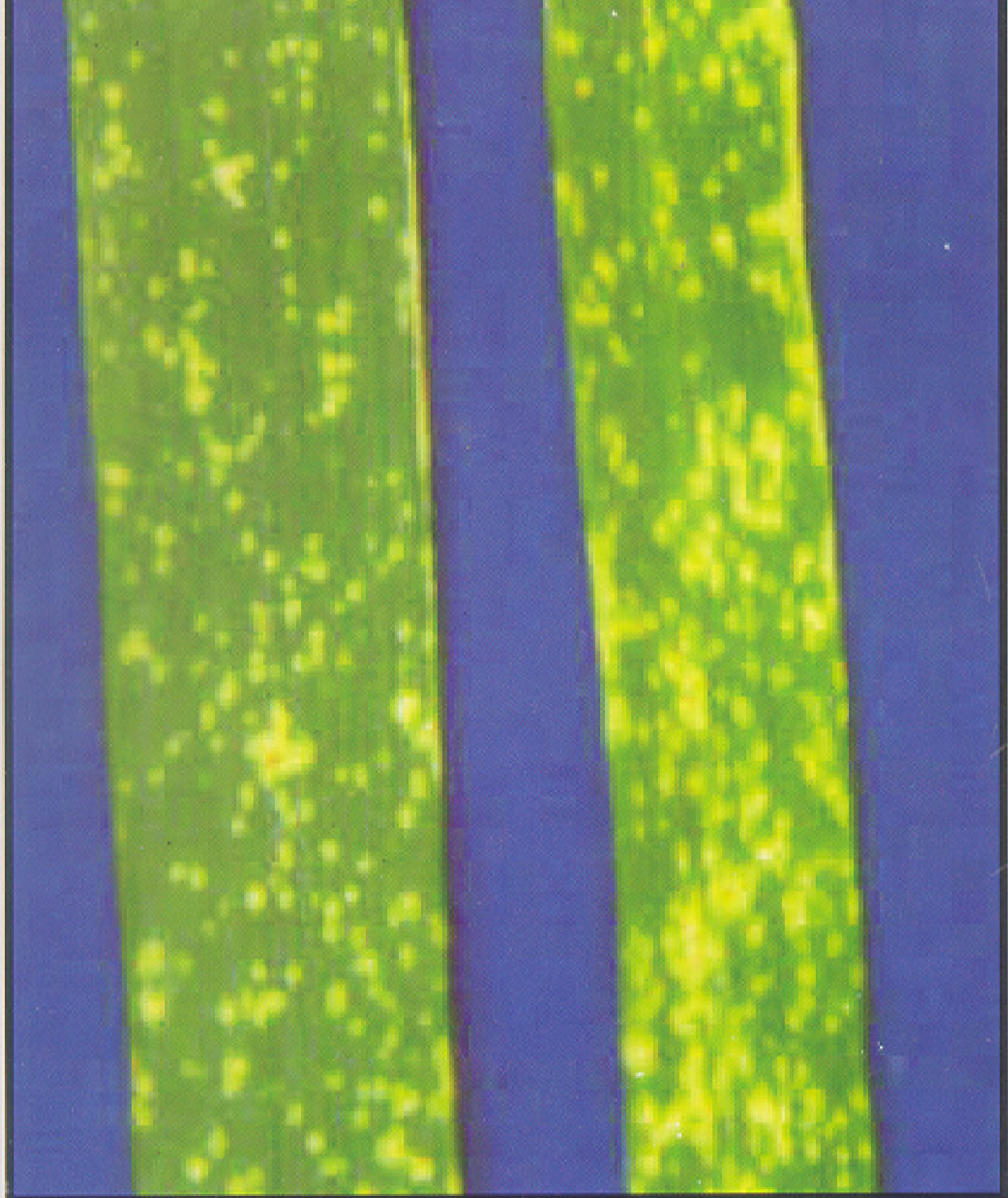
Dano por geada



Queima da ponta da folha
Dano causado por vento



Necrose de ponta de folha
Associado à presença do gene Lr 34



Salpicamento
Reação de hipersensibilidade



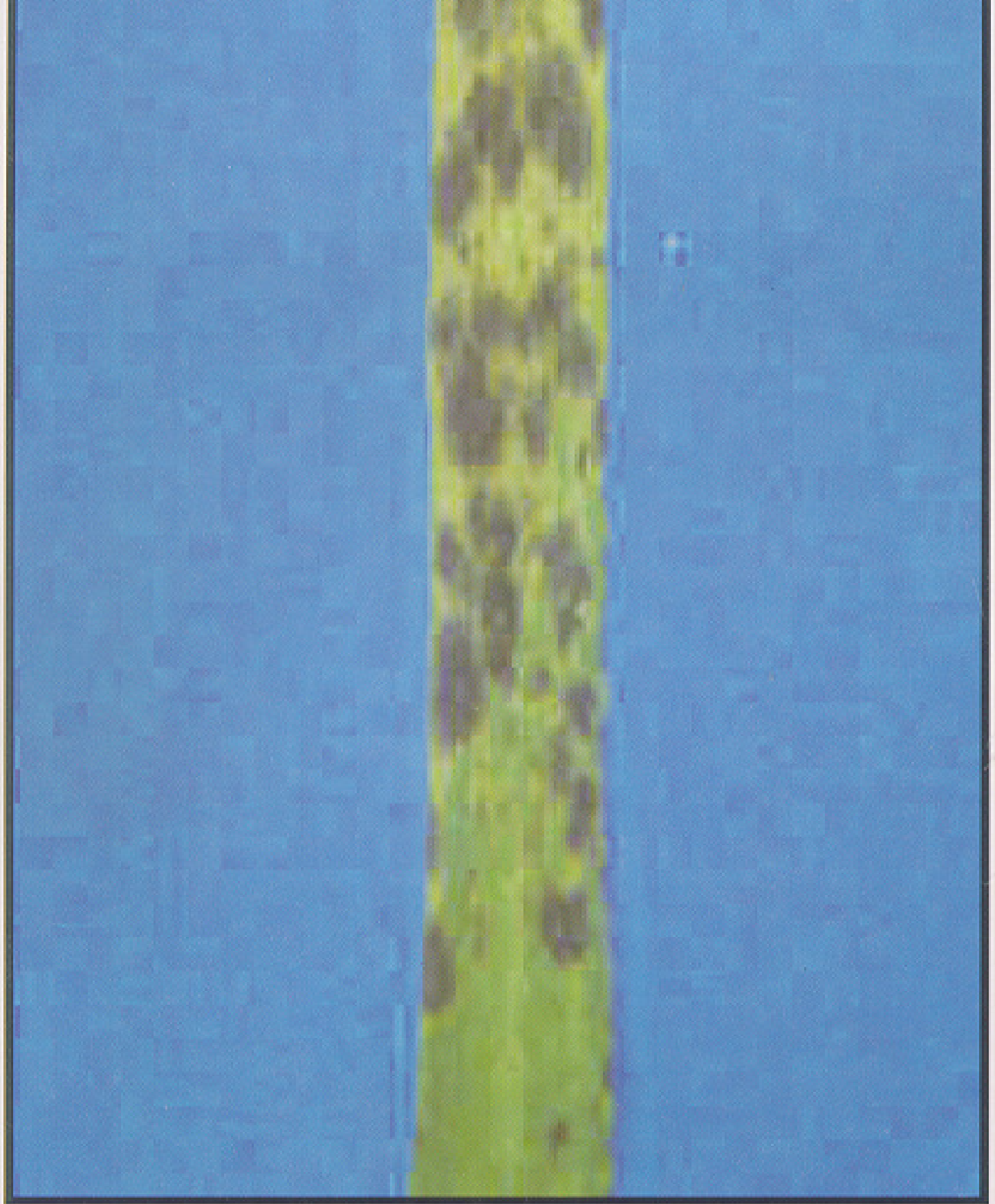
Melanismo

Sintoma causado por alta radiação e umidade



Melanismo

Sintoma causado por alta radiação e umidade



Mancha chocolate de cevada
Distúrbio fisiológico



Debulha de espiga
Dano provocado por pássaros



Espiga presa
Dano causado por vento



Deformação de espiga
Dano provocado por herbicidas



Deformação de espiga
Dano provocado por percevejos

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