FAST DETECTION METHOD FOR STRIPE DISEASE IN BARLEY

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cosqc@yahoo.com

By

Dr.

Mohammed Abdul-Khalik AL-Hamdany

Chief Scientific Researches

Plant Pathology Department, Agricultural Researches Directorate

Baghdad- Iraq

ma_alhamdany@yahoo.com

New method for fast detection of *Drechslera graminea* anamorphic stage of *Pyrenophora graminea* (The Causal Agent of Barley Stripe Disease or Leaf Stripe) on Barley seeds was invented. The new invented method dos not require any sophisticated equipments, it's simple, accurate, and inexpensive and all its requirements are available in local markets.

The justification of this patent could be summarized as follows:

1. Testing barley shipment in quarantine check points at State border.

2. Pre-harvest test for foundation and certified barley fields.

3. Seed health laboratories in seed production units or companies to meet the requirements of seed certification.

4. Plant disease diagnosis labs. In Agricultural Colleges or Universities.

The Patent Concept of this patent based largely on the movement of fungal exudates (host specific toxin) from infection site (Infected barley seeds) outside (filter paper impregnated with acidic sugar solution).

Barley infected seeds are identifying by the following procedure::

1. Place filter papers impregnated with acidic sugar solution (25g sucrose/1L), pH: 5.8 Inside Petri-dish.
2. Barley seed with dorsal side down were placed on filter paper.
3. The dishes were incubated for 5 days at 20C° and 12 hr light/day.
4. The dishes were placed under UV Light (254 nm) to designate the infected barley seeds through the pink-reddish halo surrounded the infected seeds or any piece of infected barley plant (Leaf, Stem, Rachides and Awns).

The advantages of this patent could be as follows:

1. This patent overcomes the competition phenomenon among all fungi and bacteria associated with barley seeds either as a contamination or infection).
2. Pathogen expression under UV light does not disrupt by other fungal exudates or growth.
3. Inability of other seed tests to identify the real incidence on barley seeds.

Table 1. Detection of Fungi from Barley Seeds Based on ISTA Adapted Methods

Sample No. and Method Used	No. of Seeds	Fungi	Percentages %
Sample 1 Blotter	688	*Helminthosporium* spp.	1
		Alternaria spp.	40
Agar		*Helminthosporium* spp.	1
		Alternaria spp.	36
Sample 2 Blotter	1040	*Alternaria* spp.	5
		Nigrospora spp.	3
		Fusarium spp.	4
		Cladosporium spp.	2
Agar		*Alternaria* spp.	4
		Nigrospora spp.	4
		Fusarium spp.	3
		Cladosporium spp.	2

1. Sample 1 consists of 30-40% infected seeds with *Drechslera graminea.*
Sample 2 represents *Drechslera graminea* free seeds.
2. Rules of International Seed Test Association in all seed health Labs.

Table 2. The accuracy of the invented method for detection the causal agent of stripe disease (*Drechslera graminea*) in barley seeds (Sample 1)

Techniques for Detection	%
Pink-Reddish Haloes Surround Barley Seeds Under UV Light	38.1
Disease Incidence on Barley Grown Under Greenhouse Conditions	39.5
Disease Incidence on Barley Under Field Conditions (Exp.1)	36.7
Disease Incidence on Barley Under Field Conditions (Exp.2)	34.6
The Barley Seeds (Sample 1 in Table 1) were Collected From Infected Field	

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(72) Inventor(s) and Address(s):
Dr. Mohammed Abdul-Khalik AL-Hamdany
Iraqi Atomic Energy Commission/ Agricultural Researches Directorate

(73) The Name of the Assignee: Dr. Mohammed Abdul-Khalik AL-Hamdany
(74) Agents Name:

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This patent has been awarded according to Order 21 of Patent and Industrial Designs Law No.65, 1970 and under inventor(s) responsibility.

Signature of
Registrar
Shakir M. AL-Khafaji

President of COSQC

The Patent 2949 won golden medals in the 2nd International Fair of Innovation& Inventors in Middle East, November, 2008, Kuwait, and in the Al- Basil Innovation Fair in July, 2009

With MyBest Wishes
Dr.Mohammed Al-Hamdany
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