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<b>Title of the Application</b>	Diagnostic Kit and Method for Sweet-Based Rice Blight Resistance and Resistant Breeding Lines (hereinafter "Sweet Patent")
<b>Application Date</b>	<b>PCT:</b> 07 April 2020 <b>Provisional:</b> 11 April 2019
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**Publication Link in the WIPO Website**

<https://patentscope.wipo.int/search/en/detail.jsf?docId=WO2020208017>

**BRIEF BACKGROUND**

Bacterial blight is recognized as one of the main diseases in rice cultivation. Development of blight-resistant rice lines is the most effective solution for bacterial blight caused by *Xanthomonas oryzae* pv. *Oryzae* (*Xoo*).

The invention relates to a kit for detecting and implementing rice blight resistance based on variation in SWEET promoters, comprising (1) (i) PCR primers for amplifying SWEET11a, SWEET13, and SWEET14 cDNA; and / or (ii) rice promoter reporter lines for SWEET11 a, SWEET13, and SWEET14 accumulation; (2) rice knock out lines for SWEET11 a, SWEET13, and SWEET14 genes; and (3) tester rice lines genome-edited in the SWEET11 a, SWEET13, and / or SWEET14 promoter region for evaluating the efficacy of the respective mutation for resistance. Furthermore, the invention relates to a method for detecting and implementing rice blight resistance and to specific rice lines, which included at least one genome-edited SWEET promoter sequence. These SWEET mutations have been developed from varieties derived from in-trust germplasm and genetic resources obtained under SMTA from the Multilateral System of the ITPGRFA.

This invention defines the best region-specific allelic solution for strong and wide tolerance to bacterial blight, and helps breeders introduce new rice varieties with strong tolerance to bacterial blight. Further, it helps monitor the spectrum of virulence of the pathogen, allowing customized intervention in each region.

Additional information can be found on the following links:

[https://www.mpipz.mpg.de/4969508/eom\\_nat\\_biotech\\_2019\\_OA.pdf](https://www.mpipz.mpg.de/4969508/eom_nat_biotech_2019_OA.pdf)  
<http://news.agropages.com/News/NewsDetail---37136.htm>

## **CURRENT STATUS**

In April 2020, a PCT application was filed. The application allows the lead applicant, Heinrich Heine University (HHU), to explore research partnerships and dissemination pathways with public and private partners towards the production and testing of rice varieties with a large spectrum of tolerance. The patent application is expected to generate the incentives for partner organizations to contribute the necessary resources for the further development and testing of the innovation, and eventually its employment in public and private breeding programmes.

The dissemination and impact strategies will be defined and led by HHU, as per the IRRI – HHU Agreement. The patent applications, and the patent claims, do not extend to farmers' access and use of landraces per se. IRRI will continue to comply with all obligations of the SMTA including benefit sharing, where applicable.

In addition, as per IRRI's policy, royalties paid by future licenses to IRRI shall be shared with the benefit-sharing fund of the International Treaty for Plant Genetics for Food and Agriculture (see [www.fao.org/3/a-i0510e.pdf](http://www.fao.org/3/a-i0510e.pdf)), even when conditions for benefit sharing are not triggered.

As a non-profit international organization, IRRI promotes responsible technology transfer and intellectual property management in accordance with its Intellectual Property and Commercialization Policy (IP&C Policy)<sup>1</sup> and with the CGIAR Principles on the Management of Intellectual Assets ("IA Principles")<sup>2</sup>. This patent application conforms with the IA Principles concerning intellectual property applications, i.e. necessary for the further improvement of the innovation or to enhance the scale or scope of impact on target beneficiaries, in furtherance of the CGIAR Vision.

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<sup>1</sup>Available at <http://books.irri.org/Approved-IPC-Policy-291017.pdf>

<sup>2</sup>Available at <https://storage.googleapis.com/cgiarorg/2018/03/CGIAR-IA-Principles.pdf>