New test to help detect chickpea disease

By Bhavya Khullar

New Delhi, March 2 (India Science Wire): Chickpea or *safed chana* is an essential part of diet in many parts of the country. In order to help farmers growing chickpea, scientists have developed a new test that can detect dry root rot disease in chickpea more effectively and at a lower cost.

Dry root rot is an emerging disease and can destroy chickpea plants. It is often misdiagnosed as wilt, collar rot, or black root rot because all these diseases have symptoms such as loss of green pigment and eventual plant collapse. "With rising global temperatures, the disease is becoming more prevalent. It has become highly imperative to detect the disease as early as possible," say scientists at the Hyderabad-based International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) who have developed the test.

At present, the disease is detected using a PCR-based method, which is highly laboratory intensive and requires specialised and expensive equipment.

With the new technique, the infection can be detected with naked eyes. Once DNA is extracted from a suspected plant, it is put into a small tube containing a reagent and kept at a temperature of 63 degrees celsius for one hour. If the colour of the mixture in the tube changes from yellow to orange, it would mean the plant has got the disease. DNA extraction from a plant is a simple procedure and can be done manually.

Researchers have tested the new technique with 94 samples of chickpea or Bengal gram from various sites across India including Andhra Pradesh, Madhya Pradesh, Tamil Nadu, Uttar Pradesh, Delhi, Himachal Pradesh, Uttarakhand, and Jharkhand. The study results have been published in a recent issue of the journal *Scientific Reports*,

Bengal gram has an important role in maintaining and promoting the nutrition security of India as it accounts for about 45% of total pulses produced. India is also the largest producer of chickpea with an annual production of 8 million tons, accounting for 70% of total world production.

A main advantage of the technique is that it can be used even in remote areas where laboratories are not available. In addition, reagents used are eco-friendly. (India Science Wire)