

Table 1. Change in international offers of admission, 2010–2011 to 2013–2014

Country of origin	Admission offers (%)			
	2010–11	2011–12	2012–13	2013–14
China	21	20	5	–2
India	2	0	30	24
South Korea	–2	0	–11	–8
Taiwan	–	–4	–2	–8
Canada	–	9	0	3
Mexico	–	6	2	2
Brazil	–	6	23	94

education in India is not yet at a point where it can attract and support all of the Indian students who have the ambition and talent to pursue advanced degrees. The recent weakening of the Indian economy may also be leading some Indian students to set their sights on finding a job in the US post-graduation.’

China has not only given importance to retain its own students, but also to international students’ education. In 1950, China received the first group of 33 students from the East European countries. By the end of 2000, the total number of international students in China has increased to 407,000. They are from more than 160 different countries. Among them, Chinese Government Scholarship students numbered 88,000, whereas self-financed students numbered 317,000. According to the data of the Institute of International Education on international student mobility in 2012, there are many more foreign students in China (3.28 lakh) than in Australia or Germany. China has become the third most favoured nation of

international students after the US and the UK.

China seeks to host 500,000 international students by 2020. China, Singapore, Malaysia and Japan are the major Asian players in the race of attracting international students, whereas India does not seem to attract foreign students to bring foreign revenue and the best talents to its campuses. Currently, 22,385 Indian students are in the UK and 96,754 in the US, whereas merely about 27,000 international students are studying in Indian campuses.

In 2008, the Chinese government began a national plan for medium and long-term education reform and development 2010–2020, where the focus was from kindergarten to PhD level education⁴. The plan was drafted under the close supervision of President Hu Jintao and Premier Wen Jiabao, in order to speed up the process of building China into an educationally advanced country rich in human resources. To raise the quality of higher education, importance

was given to raising quality all round, bettering talent cultivation, elevating research levels and optimizing a distinctive higher education structure. To attract foreign students to Chinese campuses, the emphasis was laid on promoting international cooperation and exchanges, introducing quality education resources abroad and upgrading exchanges and cooperation.

This plan of changing China from a production to an innovation giant seems to be bearing fruits. The Chinese Government’s move from ‘made in China’ to ‘created in China’ by 2020 looks possible to achieve in a set time-frame. Other Asian countries, especially India should take note of this.

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Association of citrus bacterial canker pustules with leafminer (*Phyllocnistis citrella*) tunnels in Iran

Citrus is one of the horticultural products that includes some of the most important tropical as well as subtropical plants. Iran, producing 3.38% of the world’s citrus, is ranked seventh in the world¹.

Citrus bacterial canker (CBC), caused by *Xanthomonas axonopodis* pv. *citri* (Xac), is considered one of the most important diseases of citrus trees in Southern Iran. Most of the citrus species in the

Rutaceae family are affected by CBC. The Asiatic form of CBC is pathogenic to almost all varieties of citrus and some species in the Rutaceae^{2,3}.

During 2000–2001 and 2005–2007, the canker disease became endemic with reduced severity in Hormuzgan province, Southern Iran. This was mainly due to the unfavourable climatic conditions, particularly low rainfall during the pre-

vious years. Citrus pustules are usually observed on the lower leaf surface alongside the galleries caused by *Phyllocnistis citrella* in this region.

The habits of larvae of citrus leafminer, *Phyllocnistis citrella* Stainton (Lepidoptera: Gracillariidae) facilitate the entrance of pathogenic microorganisms into the leaf, especially bacteria of Xac⁴. Damage by the leafminer has been

reported to exacerbate CBC in Australia, Brazil, India, USA and North Yemen⁴⁻⁶.

In this study, we report association of bacterial canker pustules with leafminer tunnels in Iran.

Bacteria were isolated from the pustules as described earlier². Infected areas were surface-sterilized with 75% ethanol and flamed. One loopful of bacterial suspension was streaked out on a nutrient agar (NA) medium containing 1% sucrose and incubated at 28°C. Single colonies with yellow pigmentation were selected and purified for further studies.

Biochemical and physiological characteristics along with some differential phenotypic features of bacterial strains and broad pathogenicity range on inoculated hosts were carried out according to Mohammadi *et al.*² with slight modifications.

Pathogenicity of purified Xac colonies was evaluated on attached leaves from different hosts by transferring a small quantity of bacterial inoculum (using suspension of 10⁸ cells) onto the leaf surface and then puncturing it with a sterile needle. Negative controls with saline solution (0.9% NaCl) were performed.

Bacterial isolates induced hypersensitive reaction in geranium leaves and were Gram and oxidase negative, obligate aerobe and produced yellow xanthomonadin pigments. The isolates were positive for catalase, phosphatase, hydrogen sulphide generation from cysteine

and unable to reduce nitrate or produce urease. All hydrolysed starch, gelatin, casein, aesculin and Tween 20 and utilized L-alanine, citrate, D-fructose, D-glucose, glycerol, L-proline and sucrose. Strains utilized glycogen, maltose, starch and dextrin. Bacterial mass colour on YPDA and Ayer media containing L-proline was pale yellow.

Typical symptoms of CBC disease appeared on inoculated Mexican lime (*Citrus aurantifolia*), unshu tangerine (*C. unshiu*), sour orange (*C. aurantium*), grape fruit (*C. paradisi*) and sweet orange (*C. sinensis*) after 30–45 days. The causal agent was re-isolated from infected tissues.

Based on the phenotypic characteristics, differential phenotypic features (bacterial mass colour as mentioned above and utilization of glycogen, maltose, dextrin and starch) and broad pathogenicity range on inoculated plants, bacterial strains were identified as *Xanthomonas citri* pv. *citri*-A. These phenotypic characteristics and pathogenicity range were consistent with those previously described for pathotype A^{2,7}.

The occurrence of citrus leafminer altered the spatial development of CBC by exacerbating infection by the pathogen and may change the temporal and spatial dynamics of the disease⁸. There have been no previous reports on the connection between citrus bacterial canker disease and *P. citrella* tunnels in Iran.

Since leafminer greatly increases the infection risk and thus increased the severity of the disease, it is suggested that controlling this pest may result in preventing disease endemics in citrus trees⁹. Control measures included pruning of symptomatic shoots and the use of copper sprays in Southern Iran. Reducing both leafminer populations and sources of Xcc inoculum through integrated pest management, would reduce the incidence of the epidemic disease⁶.

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