Collaboration for diagnosis of Mango Bacterial Canker on *Mangifera indica* in Myanmar

Myint N.Thwin[1], Ah-You N.[2], Gagnevin L.[2], Pruvost O.[2], and Johnson G.I.[3]

[1]PPD, Myanmar Agriculture Service, Ministry of Agriculture and Irrigation, Yangon, Myanmar; [2]CIRAD UMR PVBMT, La Réunion, France; [3]Horticulture 4 Development, Jamison ACT Australia.

- 2006-2008 - mango disease survey training for pest list development (Myanmar Team - Pictured Left) under the ASEAN Australia Development Co-operation Program (AADCP) Program Stream: Strengthening ASEAN Plant Health Capacity Project (1).
- Focus was regional training workshops and practical experience in surveying and disease diagnostics in selected ASEAN countries, in partnership with Australian mango pest and disease specialists.
- Surveys also provided an opportunity for extending collaboration with CIRAD, and for strengthening CIRAD-ASEAN links, when specialist expertise in bacterial disease diagnostics was required.

- Bacterial canker of mango (or bacterial black spot) caused by *Xanthomonas citri* pv. *mangiferaeindicae* (2) can cause severe infection in a wide range of mango cultivars and induces raised, angular, black leaf lesions, sometimes with a chlorotic halo.
- Suspected leaf lesions of bacterial canker were collected from mango nursery stock cv. Yin Kwe at a nursery in Yangon, Myanmar during March 2007. Sub-samples of representative accessions (Pictured Right) were dispatched by air-courier to [2]CIRAD UMR PVBMT, La Réunion, with additional reference material retained in the plant disease herbarium of [1]PPD.
- In tests at CIRAD UMR PVBMT[2], nonpigmented Xanthomonas-like bacterial colonies were isolated on KC and NCTM3 semiselective agar media (4,7).

- AFLP analysis was performed on three isolates from Myanmar and additional reference isolates of xanthomonads originating from Anacardiaceae (*X. citri* pv. *anacardii*, *X. citri* pv. *mangiferaeindicae*, *X. axonopodis* pv. *spondiae*, and *X. translucens* strains from pistachio) (2, 4).
- On the basis of multidimensional scaling (2), the Myanmar isolates were identified as *X. citri* pv. *mangiferaeindicae* and were most closely related to group B strains that were isolated from mango in India and Eastern Asia (5).
- Mango cv. Maison Rouge leaves, inoculated as previously reported (3) with the Myanmar isolates, showed typical symptoms of bacterial canker 1 week after inoculation.

- *Mangifera indica* L. probably evolved in the area that includes northwestern Myanmar (6) and to our knowledge, this is the first confirmed detection of *X. citri* pv. *mangiferaeindicae* from Myanmar. Further surveys and strain collection will be necessary to evaluate its geographic distribution and prevalence in the country (4). The diagnosis and confirmation of bacterial spot on mango from Myanmar (4) has assisted in the development of Myanmar's mango pest list, and enabled Myanmar partners to gain experience in international collaboration in plant disease specimen dispatch and diagnostics.

Some of our ASEAN partners in AADCP mango disease survey training

1. http://www.aseansec.org/aadcp/ps/ProjectSummaryPlantHealth.pdf Accessed 1/5/2010.
2. Ah-You N. et al. 2009. Int. J. Syst. Evol. Microbiol. 59:306-318.
3. Ah-You N. et al. 2007. Phytopathology 97: 1568-1577.
4. Ah-You N. et al. 2007. Plant Dis. 91: 1686.
5. Gagnevin L. and Pruvost O. 2001. Plant Dis. 85: 928-935.
6. Mukherjee S.K.1997. Page 1-21 in: The Mango, Botany, Production and Uses. Litz R.E., ed. CAB International, Wallingford, UK, 1997.
7. Pruvost O. et al. 2005 J. Appl. Microbiol. 99: 803-815.

Acknowledgements: Thanks to CIRAD for sample testing and for funding attendance of Myint Nu Thwin to the ICPPB, to AusAID for funding AADCP training, and to Peter & Charmaine Williamson for help with poster