

derived from *Tri7* and *Tri13* genes at the trichothecene biosynthesis gene cluster revealed that most isolates (260) were NIV chemotype; 9 isolates were identified as DON chemotype by *Tri13* but as either NIV chemotype or unknown by *Tri7*. The result of chemical analysis also supported the chemotype determination; all of the NIV chemotype isolates produced NIV, whereas the 9 isolates produce either DON or no toxin.

**3-26. Studies on Physiology, Ecology and Protection of Citrus Canker Caused by *Xanthomonas axonopodis* pv. *citri***

Seong-Chan Lee, Jae-Wook Hyun, Dong-Hwan Kim, Kwang-Sik Kim and Han-Chul Lim  
Department of Agricultural Environment, National Jeju Agricultural Experiment Station ,  
R.D.A. Jeju, Korea, 699-803

Citrus canker is very important disease in international trade of citrus . The disease was usually take place from late of June , and severe middle of July to middle of August, though disease occurrence was affected by environmental conditions. In pathogenicity test, three varieties, orange, lemon and kiyomi among 7 varieties, were susceptible, two varieties, satsuma mandarin and iwasachi, intermediate resistant. On the other hand, shiranuhi and yuzu were resistant relatively. The pathogen, *Xanthomonas axonopodis* pv. *citri*, grew well in PD broth adjusted to pH 7.0 at 26°C. It's growth was best in medium containing group of monosaccharide as a carbon source and group of ammonium as a nitrogen source.

Tow isolates were resistant to streptomycin among 11 isolates isolated from diseased leaves in field in Jeju-Do. The streptomycin sensitives isolate was controlled by in greenhouse test. On the other hand, the resistant and sensitive isolates were controlled by treatment with copper sulfate, the control value is 88.7% and 90.6%, respectively.