HSING-YEH LIU*, GAIL C. WISLER, JOHN L. SEARS, AND JAMES E. DUFFUS. USDA-ARS, 1636 East Alisal Street, Salinas, CA 93905. **Beet chlorosis virus - A new luteovirus affecting sugarbeet.**

ABSTRACT

A yellowing disease of sugarbeet has been frequently observed in Colorado, Nebraska, Texas, and California sugarbeet fields since early 1990s. Preliminary investigations suggest that this yellowing disease causes sugar yield losses from about 4 to 40 percent depending on the variety. Symptoms of this disease are identical to those caused by beet western yellows virus (BWYV) including interveinal yellowing, thickening and brittleness of older leaves and necrotic lesions caused by *Alternaria sp.* BWYV isolates from beet have a wide host range and are readily distinguished by systemic infection of shepherd's purse (*Capsella bursa-pastorus*) and lack of infection of *Chenopodium capitatum*. These newly described isolates have a narrow host range and show interveinal reddening on *C. capitatum* but do not infect shepherd's purse. Biological properties indicate these isolates are distinct from BWYV. This disease is transmitted in a persistent manner by the green peach aphid (*Myzus persicae*) but is not mechanically transmissible. The virus has been purified and the isometric virus particles are 26 nm in diameter. The coat protein from purified preparations is ca. 23 kDa. In western blot analyses the antiserum to this new luteovirus reacted homologously and not with BWYV. Base on the virus particle morphology and insect transmission this virus is a member of luteovirus group. Serological analysis and biological properties indicate that this virus is distantly related to, but distinct from BWYV. We proposed to name this virus beet chlorosis virus (BChV). BChV may be more damaging to sugarbeet but because of the narrow host range may be more readily controlled by host-free periods than conventional BWYV strains. To elucidate the relationships among BWYV, BChV, and the widely spread beet mild yellowing luteovirus in Europe further research is justified.