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Beet soilborne mosaic virus (BSBMV), vectored by *Polymyxa betae*, is widespread throughout many of the major sugar beet production areas of the United States but has not been identified outside the USA. Over the last two years, sugar beets exhibiting typical symptoms of rhizomania but testing negative for beet necrotic yellow vein virus (BNYVV) and positive for BSBMV have been recovered from Texas, Colorado, Nebraska, and Minnesota. It is unknown whether the isolates of BSBMV associated with rhizomania-like symptoms cause these symptoms or whether the symptoms are due to environmental conditions or some other unidentified factor. In addition to possible similarities in symptom expression, there have also been reports of serological similarities. In an attempt to better understand the relationship between BSBMV and BNYVV, RNA 2 of BSBMV was cloned and sequenced and the sequence and genomic organization was compared to that of BNYVV. Six putative open reading frames (ORFs) were identified on BSBMV which were nearly identical in size and position to those of BNYVV RNA 2. Comparisons of amino acids encoded by each ORF from BSBMV and BNYVV indicated that the lowest match was 62% in ORF 6 and the highest was 90% in ORF 4. Sequence homology of BSBMV with other furoviruses rarely exceeded 30% similarity. These results indicate that BSBMV and BNYVV are more closely related to each other than to other furoviruses. Because of the genomic similarity between BSBMV and BNYVV, it would not be surprising if some isolates of BSBMV were able to cause severe disease similar to rhizomania in sugar beets.