Phytoplasmal big bud is one of the important diseases of tomato (Lycopersicon esculentum) in the world. The disease has been reported from Iranian provinces of Bushehr, Isfahan, Fars, Khorasane Razavi and Ardabil. During a summer survey in 2010, symptoms of big bud disease was observed in tomato fields of Dorood area in Lorestan province. Characteristic symptoms of the disease were small thickened and chlorotic leaves, purple coloration along the veins of the underside of young leaves, proliferation of auxiliary buds, abnormal flowers with enlarged and united calyx segments, and virescent petals, sterility and dwarfing. The disease agent was successfully transmitted by side veneer grafting from a naturally symptomatic tomato to 3 healthy tomato plants causing big bud symptoms. Total DNA was extracted from midrib tissue of 5 naturally symptomatic, 3 experimentally inoculated and a healthy tomato plant using Zhang et al. (1998, J. Virol. Methods 71: 45-50) procedure. Direct polymerase chain reaction (PCR) with primer pair P1 / P7 yielded fragments of approximately 1.8 kbp from five of five field collected big bud affected plants in Dorood and all symptomatic experimentally inoculated plants. No products were amplified with DNA samples from asymptomatic tomato plant. On the basis of disease symptoms, graft transmission and positive reaction with the phytoplasma-specific primed PCR, tomato big bud disease in Dorood has phytoplasmal etiology. This is the first report of tomato big bud disease in Lorestan province.