The mechanism of action of Fusarium culmorum isolates (B4, ISP, Fc5) with suppression rate of Pratylenchus thornei in vitro experiments was investigated. Both organisms are parasites of the cereals fibrous root cortex. Three different F. culmorum isolates B4, ISP, Fc5 were used in the study. Fungal spore suspensions were subsequently filtered through a 1-mm-aperture sieve to remove mycelial fragments and adjusted to provide a final spore count of 2.5X10³ spore/ml under a haemocytometer. Potato Dextrose Agar (PDA) containing 100 mg/L streptomycin was poured into 6 cm petri dishes, 200 lesion nematodes and 2.5X10³ spore/ml were added simultaneously. Only nematode-treated petri dishes were taken as controls. Petri dishes were covered with parafilm and they were cultivated at 25°C±1 for 3 days. The treatments were arranged in a randomized complete block design with 3 replicates. After 3 days, F. culmorum decreased P. thornei to those of controls. F. culmorum colonization significantly affected the vitality of P. thornei. Percentage of deaths (%) were found to be higher in ISP (%26.3) and B4 (%13.1) isolates than controls. Whereas the number of dead larvae was highest in the ISP (52.6 nematodes/petri dish), the lowest in the Fc5 (9.6 nematodes/petri dish) isolates. The results of the experiment, F. culmorum suppressed P. thornei in petri dishes and the differentiation of isolates important in this suppression.