Brown wood rot is a chronic fungal disease of citrus occurring mostly on mature trees in most citrus-growing areas of the world. In Arizona, Brown wood rot has caused extensive destruction in mature lemon plantings in Yuma County. A newly described species, *Fomitopsis meliae*, was the major causative agents among several fungi implicated in brown wood rot. Isolates of *F. meliae* were recovered from the infected wood samples and *in vitro* studies were conducted to evaluate efficacy of various fungicides against these fungal isolates and develop baseline sensitivities to these fungicides. Agar media were amended with fungicide compound at various concentrations. A total of 25 fungicides with various modes of actions were evaluated with 12 isolates. EC\textsubscript{50} and EC\textsubscript{90} values were calculated using drc package, R Project. There were ten fungicides showing excellent activities with EC\textsubscript{50} values less than 0.5 ppm. Any fungicide containing propiconazole, difenoconazole, benzovindiflupyr, fluoxconizil, azoxystrobin, and trifloxystrobin were highly effective and showed complete inhibition of all the isolates evaluated at concentrations as low as 5 ppm. Other fungicides showed variable responses among the isolates and were not as effective as the ones mentioned above.