The effect of soil characteristics during an earthquake occurrence is one of the main factors in earthquake engineering. Soft sedimentary coating can reinforce or weaken intensity of strong motion in specific frequency ranges under earthquake influence. Amplification or attenuation of frequency band under effect of local sediments depends on thickness and shear wave velocity of soil layers. Therefore, structures may be more severely damaged, if their natural frequency is close to the amplified frequency of the ground. In this paper, soil behaviour is studied under frequency domain by using empirical methods such as spectral ratio of sedimentary site horizontal components to rocky site ($H_s/H_r$), also known as the Reference Site method, and Horizontal to Vertical Spectral Ratio method (HVSR). By using the recorded accelerograms of Changureh-Avaj (2002), Tehran (2003), Kojour-Firoozabad (2004) and Kahak-Qom (2007) earthquakes, that were in different azimuths related to the accelerographic stations in Tehran, Iran, site amplification functions were calculated in the location of these stations, individually. Dominant frequency and site amplification factor were estimated for each station using amplification function. Then by using the obtained dominant frequency, shear wave average velocity of each station was measured. In addition, sites were categorized with regards to the resultant velocity of shear wave in Tehran accelerographic stations. Finally, the obtained results were compared with seismic micro zonation study results of Tehran (Jafari et al., 2002) and the affecting factors were discussed.