Increasing interest in determining the role of selenium significance in human organism has necessitated the use and improvements of various analytical techniques. In this study we present electrothermal atomic absorption spectroscopy (ETAAS) as irreplaceable technique for determination of selenium to facilitate the characterization of influence of selenium to the human organism. The developed method was successfully employed for research of selenium status among Estonians analyzing the serum samples of healthy people and patients with several pathologies. Comparing analysis was done by using hydride generation atomic absorption spectrometry.