Abstract
Ascorbic acid (AA) is able to neutralize reactive oxygen species and is essential for collagen synthesis. In aging process oxidative stress is elevated. This study aims to investigate the effects of AA supplementation on the periodontal ligament (PL) of rats during aging. Twenty five rats were used and divided into groups: J90 (90-day-old control), E345 (345-day-old control), E428 (428-day-old control), EA345 (345-day-old supplemented with AA from 90-day-old on) and EA428 (428-day-old supplemented with AA from 90-day-old on). We analyzed the thickness, density of fibroblasts and blood vessels and collagen fibers types in the PL. In group J90 there was predominantly type III collagen fibers (87.64%). In animals supplemented with AA, the area filled by type I fibers (group EA345: 65.67%, group EA428: 52.23%) was higher than type III fibers. PL in group EA428 was thicker than the one observed in group E428 (P < 0.05). During natural aging process, AA promoted the maturation of collagen fibers and enhanced angiogenesis in periodontal ligament. One can conclude that the supplementation with AA represented a beneficial factor for the development of PL in aged rats.

Keywords
Aging, ascorbic acid, collagen, periodontal ligament.