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**Title:** Plant proteinase inhibitor from Enterolobium contortisiliquum (EcTI) attenuates elastase-induced pulmonary inflammatory, remodeling and mechanical alterations in mice

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**Body:** Aims: to evaluate if a plant Kunitz proteinase inhibitor EcTI contributes to inactivation of elastase-induced mechanical, inflammatory and remodelling alterations. Methods: C57Bl6 mice received elastase (E group). Control group received saline (Ve group). Mice were treated with EcTI (2mg/kg) on days 1, 14 and 21 after elastase instillation (I-E group). On day 30, mice were anesthetized, mechanically ventilated and we analyzed respiratory system resistance (Rrs) and elastance (Ers), tissue elastance (Htis), tissue damping (Gtis), airway resistance (Raw) and exhaled nitric oxide ($E_{NO}$). Bronchoalveolar lavage fluid (BALF) was performed, lungs were removed and by morphometry, we quantified the mean linear intercept (Lm), collagen and elastic fibers in lung parenchyma. Results: In E-group there was a significant increase in the Ers, Rrs, Raw, Htis, Lm, $E_{NO}$, total cells and macrophages,neutrophils and lymphocytes in BALF, elastic and collagen fibres compared to controls ($p<0.05$). In I-E group there was a decreased in Lm (57.63±5.2µm), Raw (0.29±0.05cm$H_2O$/ml/s), Ers (34.71±3.16cm$H_2O$/L), Htis (36.30±4.42cm$H_2O$/mL/s), macrophages (94.86±2.36%), neutrophils (3.29±2.31%), and lymphocytes (0.91±0.28%) in the BALF, $E_{NO}$ (31.67±2.23ppb) and collagen fibers (0.69%±0.04%) compared to E-group ($p<0.05$). Conclusions: This proteinase inhibitor (EcTI) reduced elastase-induced pulmonary inflammatory, remodeling and mechanical alterations induced by elastase. Although more studies need to be performed, this inhibitor may contribute as potential therapeutic tool for COPD management. Financial Support: FAPESP, CNPq, LIM-20 HCFMUSP.