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Mechanical Behaviors of Tension and Relaxation of Tongue and Soft Palate: Experimental and Analytical Modeling

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**Highlights**

- Uniaxial tension test and stress relaxation test on 39 fresh tissue samples from four five-month-old boars ( $65 \pm 15$  kg) are conducted.
- The stress-strain mechanical characteristics of the tongue and soft palate samples are demonstrated to be non-linear and can be divided into two stages: the IRS stage and the LRS stage.
- Significant stress relaxation generates is obtained for all the tongue and soft palate samples and almost half of the stress attenuation is completed in the first 3 seconds.
- A constitutive model is proposed to represent the mechanical behaviors of the muscle tissues and the fitting results are very good.

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