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Characterization of mucus macro-rheology from the silver carp, *Hypophthalmichthys molitrix*[1] KARTIK V BULUSU, SAMANTHA RACAN, L PATRICIA HERNANDEZ, MICHAEL W PLESNIAK, The George Washington University — The silver carp, *Hypophthalmichthys molitrix* is a planktivorous filter feeder fish introduced to control algal blooms in natural waterways of the US. Since the early 1970s this invasive species has infested the Mississippi River basin. Its extraordinary feeding-efficiency is attributed to two unique organs viz., (i) the gill rakers (GR) and (ii) the palatal folds that enable capturing of food particles through the porous GR membranes. The GR mucus has the potential to enhance the filter feeding process by functioning as an adhesive and a transport vehicle for food particles. It is a gel-like, complex biological fluid that responds to external force and comprises a macromolecular network of glycoproteins (or mucins). Viscoelasticity and steady-state viscosity of the GR mucus of silver carps obtained from Hart Creek, Missouri River were investigated using a rheometer (DHR-2, TA Instruments) with cone geometry (1-deg., 40 mm dia.) and a Peltier plate. A digital camera attachment (546800.902, TA Instruments) was used to monitor microstructure changes. These experiments are aimed at understanding the role of mucus-laden fluid flow through porous GR channels and ultimately, the tremendous success of the silver carp in outcompeting native fish species.

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