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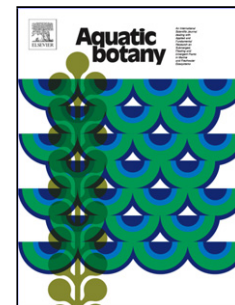
Title: Regurgitation by waterfowl: an overlooked mechanism for long-distance dispersal of wetland plant seeds?

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A novel role for xenopsin: stimulation of food intake

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Highlights

▣ Central injection of xenopsin exerts a dose-dependent orexigenic response in chicks. ► The lateral hypothalamus appears to be the primary site of action and the only hypothalamic region involved. ► The effect on food intake is likely primary as other behaviors are not increased but rather decreased.

Abstract

Xenopsin (XPN), an extract from frog skin, is comprised of 80 amino acids and exerts effects on the mammalian digestive tract. The purpose of the study presented here was to determine if XPN would affect food intake using chicks as models. Chicks which had been fasted for 180 min did not change food or water intake after central injection of XPN. However, *ab libitum* fed chicks which received 1 and 3 nmol central XPN increased food intake while water intake was not affected. When the dose was increased to 9 nmol chicks did not increase food intake but their water intake was reduced suggesting malaise. Chicks injected with XPN had increased *c-Fos* immunoreactivity in the lateral hypothalamus, but other hypothalamic appetite-associated nuclei were not affected. When XPN was directly injected into the lateral hypothalamus food intake was increased, suggesting a primary site of action. When the expression of appetite-associated neuropeptide mRNA was quantified chicks injected with XPN had increased proopiomelanocortin mRNA. Lastly, a comprehensive behavior analysis was performed and while XPN injected chicks had an increase in the number of feeding pecks, jumping, preening, deep rest and sitting were all decreased. Thus, we conclude that exogenous XPN functions as an orexigenic factor in chicks and its effects are mediated by the lateral hypothalamus.

Key words: chicks, food intake, hypothalamus, xenopsin

1. Introduction

Xenopsin (XPN) is an octapeptide which is positioned as the last eight residues at the extreme COOH terminus of a precursor polypeptide comprised of 80 amino acids with a calculated molecular weight of 10,000 [1, 2]. First isolated from *Xenopus* skin extracts [3], the biological function of XPN in amphibians remains unclear. However, when injected into other species it

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