

REPRODUCTIVE ANATOMY AND GONADAL DEVELOPMENT OF THE TURRID *Gemmula speciosa* (REEVE, 1843)

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ABSTRACT

The reproductive anatomy and development of the gonads of the turrid *Gemmula speciosa* (Reeve, 1843) were studied histologically. Specimens collected from September 2004 to June 2007 from waters off Cavite and Batangas, Philippines exhibited gonochorism, with an average male:female sex ratio of 1.5:1. Females were slightly larger than males, and sexually mature at about 47 mm shell length. The Maturity and Gonad Indices showed that *G. speciosa* had an annual reproductive cycle with a peak during the fourth quarter. Spawning was synchronous, although males had continuous gonad development, while females exhibited a long resting phase after spawning.

Key words: gastropod, *Gemmula speciosa*, gonad development, Gonad Index, Maturity Index, reproductive anatomy, toxoglossate, turrid

INTRODUCTION

The turrid *Gemmula speciosa* belongs to the Order Neogastropoda, and has a spindle-shaped shell with a typical siphonal canal. This species is strictly marine, carnivorous (Taylor et al., 1980), and secretes venom. It is a nocturnal soft-bottom dweller. *G. speciosa* has been collected locally from 54 to 73 m depth (Heralde et al., 2010), but turrid species are widespread, occurring from high to low latitudes, and from the shallow intertidal to abyssal depths (Sysoev, 1988, cited in Tucker, 2004).

Toxoglossate gastropods of the families Conidae, Terebridae and Turridae are emerging as an important pharmacological resource. The recent growing interest in the turrid *G. speciosa* stems from scientific research on another toxoglossate group, the Family Conidae (Powell, 1964). Over 20 years of research on the component of the cone venom led to the importance of the *Conus* venom peptides as basic tools in neuroscience, as diagnostic agents and as therapeutic drugs. These studies also revealed that there are still about 50,000 different conotoxins in the cone venom that need to be investigated. Cone shells may have evolved from the turrids, which may exhibit similar mechanisms of envenomation (Terlau et al., 1996; Espiritu et al., 2001; Espiritu et al., 2002; and Jimenez et al., 2003). Turritoxins are now gaining ground in terms of research (Lopez-Vera et al., 2004).

G. speciosa has been collected from waters off Badian Island (western Samar), Mantaguin Island (eastern Palawan) (Powell, 1964), Bataan, Cavite, Batangas, Cebu, and Bohol (Heralde et al. 2010). Beyond Philippine waters, it is generally found in the Indo-Pacific ocean and the Red Sea (Olivera 2005), particularly in the Arabian Sea, Beibu Gulf, South China Sea,