

Goodbye Mr Chips – a cautionary tale

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Insect-feeding beetles are a scourge of entomological collections because of their ability to feed on, and destroy, valuable insect specimens. Carpet beetles (Dermestidae), including species of *Anthrenus* and *Reesa*, and some species of Anobiidae are the most commonly encountered culprits.

The discovery of specimens of the tobacco beetle, *Lasioderma serricorne* (Fabricius) (Coleoptera: Anobiidae), among the packaging of an insect consignment sent from the New Zealand Arthropod Collection (NZAC) to Lincoln University in October 2001 caused a deal of concern. The tobacco beetle (also known as the cigarette beetle) is a serious pest of tobacco but will also attack a wide range of dried plant and animal material, including insect specimens (Archibald & Chalmers 1983; Pinniger & Harmon 1999).

Inspection of the pinned specimens sent in the post showed no evidence of damage or attack, but they were treated by freezing as a precautionary measure. In November 2001 another insect consignment was received from NZAC, also containing tobacco beetles among the packing material, but again without any apparent damage to the insect specimens. Suspicion turned to the packaging material as the source of the infestation, rather than the insect specimens. Our suspicions were confirmed when about 50 adult tobacco beetles were discovered at the bottom of a bag of foam packing chips at NZAC. These were subsequently killed by freezing and discarded. Packaging material at the NZAC is stored away from the main collection.

Most packing chips are made of expanded polystyrene. In recent times, however, in an effort to produce a more environmentally-friendly, biodegradable product, some chips have begun to be manufactured using starch-based materials. Unfortunately, the starch content of the packing chips provides a potential food source for pest insects. The tobacco beetles from NZAC were in fact feeding on the starch-based chips. No larvae were found so it is unclear if the beetles were breeding in the chips.

We therefore recommend avoiding the use and storage of starch-based chips within the vicinity of entomological collections, or other natural history collections.

Of course, it is necessary to be able to distinguish starch-based chips from the more common polystyrene forms. The beetle-infested starch-based chips were less dense and more translucent than polystyrene chips, had a distinctive large-celled foam appearance and were cylindrical in shape (around 40 x 15 mm) (Fig. 1). However, starch-based chips are now being produced in a wider range of shapes and colours. If in doubt, a good way of recognising starch-based chips is to place them in water. The starch dissolves rapidly (in around 30 seconds) in water and the chips quickly disintegrate.

Starch-based chips are not suitable as packing around wet samples or where a package may be exposed to moisture, because of their solubility in water. Moisture from a leaking specimen vial, for example, may cause chips to soften and eventually disintegrate, resulting in less effective cushioning of parcel contents (Cor Vink, *pers. comm.*).

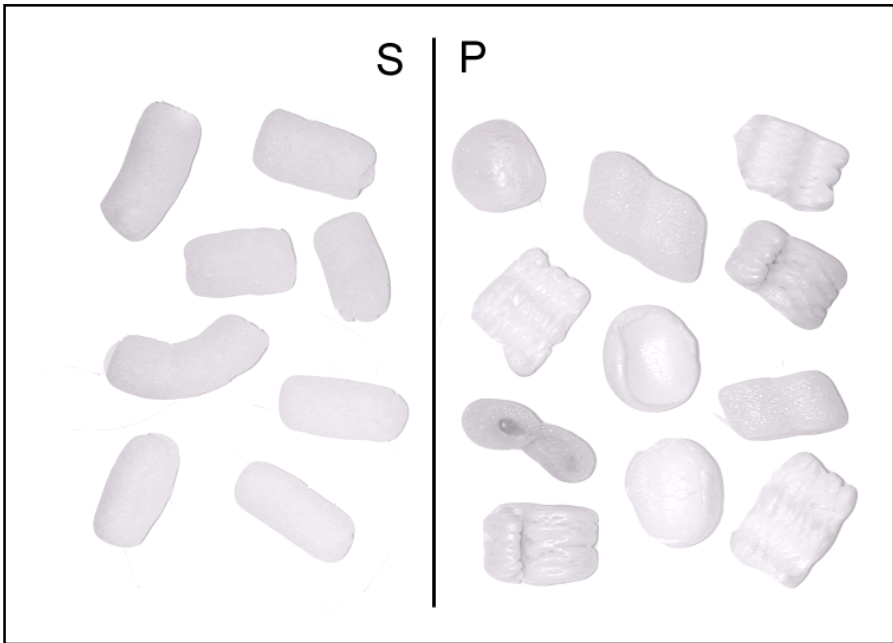


Figure 1. A selection of starch-based (S) and polystyrene (P) packing chips.

References

- Archibald RD, Chalmers I. 1983. Stored product Coleoptera in New Zealand. *New Zealand Entomologist* 7(4): 371-397
- Pinniger DB, Harmon JD. 1999. Pest management prevention and control. In: *Care and Conservation of Natural History Collections* (eds D Carter & AK Walker) pp 152-176. Butterworth-Heinemann, Oxford.