

Mothballs: bringing safety issues out from the closet

Lim H C

Mothballs retailed for household use in Singapore may contain naphthalene or paradichlorobenzene. The latter poses fewer harms if ingested. Camphor mothballs are not freely available. Naphthalene mothballs are sold in sealed plastic bags. Sometimes, they are multi-coloured and have added fragrance. Exposure to naphthalene may be associated with greater medical toxicity than previously appreciated.

Santucci and Shah found, over a ten-year period, that the majority of paediatric patients admitted with glucose-6-phosphate dehydrogenase (G6PD) deficiency and associated haemolysis had been exposed to naphthalene. In comparison with other paediatric patients with G6PD deficiency and acute haemolysis associated with infection, those patients showing an association with naphthalene tended to have lower haemoglobin levels, increased haemodynamic instability, and more commonly required transfusions⁽¹⁾. The prevalence of G6PD deficiency in Singapore is 2.5%⁽²⁾. This may translate into an estimated at-risk population of 100,000. As little as one ingested mothball can cause toxicity. Potential complications include methaemoglobinaemia and death^(3,4). In a two-year local study, mothballs were identified as one of the household agents associated with patients who were admitted to hospital accidental for poisoning⁽⁵⁾.

In the United States, naphthalene is illegal for sale in the state of California; although federally-registered products are available in other states⁽⁶⁾. Registered naphthalene products will have proper use directions to mitigate health risks. In the state of Queensland, Australia, regulation on packaging of naphthalene for domestic use exists. It needs to be enclosed in a device, which prevents removal or ingestion during normal use⁽⁷⁾.

In Singapore, both naphthalene and paradichlorobenzene do not need to be registered under the Environmental Pollution Control Act 1999 (National Environmental Agency)⁽⁸⁾. Under the Control of Vectors and Pesticides Act 1998, all public health pesticide products and repellents intended for use against the five vectors (i.e. mosquitoes, flies, rodents, cockroaches and rat fleas) in Singapore are required to be registered. No registration is required for pesticides targeted at pests other than these five vectors.

Household naphthalene balls are labelled for use against mildew and moths. Consumer reasons for mothball usage in Singapore are unclear. However, a study conducted in the United States has found that the most common reason for mothball use was not as a moth repellent at all, but for the aromatic potential and as a cockroach repellent in the city⁽¹⁾.

The Health Promotion Board recommends mothballs to be hung in containers. If they are used in closets or chests, they should be out of reach of toddlers⁽⁹⁾. It is unlikely that consumers who purchase mothballs in plastic bags would transfer its contents into perforated holding containers that are adequately child-safe. The presence of colouring also attracts unwarranted attention from curious toddlers and children, who may mistake them for sweets. Regulations may be needed with regard to the packaging of mothballs. For increased safety and awareness, an advisory to alert potential G6PD deficient users will be appropriate as well.

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Department of
Emergency Medicine
Changi General
Hospital
2 Simei Street 3
Singapore 529889

Lim H C, MBBS,
MRCS, FAMS
Associate Consultant

Correspondence to:
Dr Hoon Chin Lim
Tel: (65) 6850 1687
Fax: (65) 6260 3756
Email: hoon_chin_lim@cgh.com.sg