

Letter to the Editor

Only Peru Balsam extracts or distillates are used in perfumery

Dear Sir,

I read with interest the paper by Avalos-Peralta et al. (1) on the sensitivity to Myroxylon pereirae resin (Peru Balsam). For many years, *M. pereirae* has been used as a marker for fragrance allergy (2, 3). In fact, as stated by Avalos-Peralta et al., it continues to be used as a marker because it is believed that individual components of Peru Balsam are fragrance ingredients in their own right or are related to fragrance ingredients.

In fact, the crude Peru Balsam is not used in perfumery and has not been used since 1982 when the International Fragrance Association (IFRA) first banned the use of this material in fragrance. The only forms of Peru Balsam used in perfumery are the extracts or distillates, and the current IFRA Standard restricts the use of all extracts and distillates of Peru Balsam [the exudation from *M. pereirae* (Royle) Klotzsch] to a total level of 0.4% in consumer products. This limit has been in effect since 1991.

Peru Balsam used in perfumery is prepared either by vacuum distillation (Peru Balsam oil) or by solvent extraction (Peru Balsam absolute). Neither material is used at high volumes in fragrances, but of the two, the oil is the more important. The worldwide volume of use of the oil is less than 10 metric tons and the worldwide volume of use of the absolute is less than 1 metric ton (IFRA Volume of Use Survey, 2000).

A GC-MS analysis of a sample of Peru Balsam oil tested by RIFM shows that the material contains 58.2% benzyl benzoate, 13.5% (*trans*)-cinnamic acid, 12.4% (*trans* + *cis*)-benzyl cinnamate, 8.1% benzoic acid, 4.2% (*trans*)-nerolidol, 1.2% benzyl alcohol and 0.7% (*trans*)-methyl cinnamate. An estimate of the concentration of the volatiles in Peru Balsam absolute is as follows: 49.5% benzyl benzoate, 11.5% (*trans*)-cinnamic acid, 10.5% (*trans* + *cis*)-benzyl cinnamate, 6.9% benzoic acid, 3.6% (*trans*)-nerolidol, 1.0% benzyl alcohol and 0.6% (*trans*)-methyl cinnamate. It is important to emphasize that cinnamic aldehyde is not a constituent of these products

(sensitivity is set at 50–100 p.p.m.). The major constituent is benzyl benzoate, which accounts for at least half of the composition and is classified as an extremely weak allergen (potency classification according to Gerberick et al.) (4).

Recent studies conducted by RIFM showed that crude Peru Balsam is a more potent sensitizer than either the oil or the absolute. In the murine local lymph node assay, the EC₃ value for the crude Peru Balsam was <0.5% (moderate-to-strong sensitizer), while the EC₃ values for the oil and absolute were 4% and approximately 2.5%, respectively (weak-to-moderate sensitizer). The data are currently being summarized and will be submitted for publication. In addition, the current IFRA Standards will be reviewed in light of the new data and with regard to a new method for conducting dermal sensitization quantitative risk assessments for fragrance ingredients.

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References

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4. Gerberick G F, Robinson M K, Felter S P, White I R, Basketter D A. Understanding fragrance allergy using an exposure-based risk assessment approach. *Contact Dermatitis* 2001; 45: 333–340.

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