Reviewer’s report

**Title:** Concentrations versus amounts of biomarkers in urine: a comparison of approaches to assess pyrethroid exposure

**Version:** 1  **Date:** 8 September 2008

**Reviewer:** Jun Ueyama

**Reviewer’s report:**

**Major Compulsory Revisions:**

I read with interest this manuscript regarding the relationship between concentrations versus amounts of metabolite of pyrethroid in urine. The determination of pesticide metabolites in the fluids of subjects is an optimal approach to obtain reliable information on current exposure levels for the general population or exposure by all routes. Authors suggested that the estimated daily intake of pyrethroids (3PBA) and permethrin (cis/trans-permethrin) in human body varied widely due to variability of creatinine excretion rate and urinary flow rate. The basic data about intra- and inter-individual variability in the urinary flow rate and creatinine excretion rate may play a pivotal role for accurate dose reconstruction using the measurement of urinary pesticide metabolites.

I have a strong doubt on the method that estimating the daily absorbed dose of pyrethroid using urinary metabolite measurements. Authors have estimated permethrin intake dose from urinary DCCA measurement using some equation in table 3 and 4. Is this regulatory procedure for assessment of pesticide intake now? I think these estimated values represent just an amount of permethrin metabolite excreted in urine for 24 h, but not daily absorbed dose of permethrin. When one mole of permethrin was absorbed in the body, one mole of DCCA and/or 3PBA was excreted in urine until 24 h or more? If not, the present data in table 3 and 4 might be overestimated values. Method of Fenskel et al. can be applied for estimation of pyrethroid daily intake? They reported dose estimates based on urinary metabolites of organophosphorus pesticide, but not pyrethroid. Authors should explain about the definition and limitation of the estimation of absorbed permethrin dose.

**Minor Essential Revisions:**

1. The number of subjects in this study is not the same as that in your reference papers. In pg 7 study 1 and study 2, the subjects (n=15 for study 1; n=74 for study 2) are not matched to reference 9 (n=18), 41 (n=150?) and 4 (120 adults and 120 children). You mentioned that the individual variability of urinary flow rate and creatinine excretion rate depend on age, gender and etc. Therefore, the characteristics of subject such as gender and the range of age should be described.

2. In table 3 and 4, not only maximum, median and minimum data but the 95 percentile data should be provided.
3. Results appears like “Results and Discussion” in several places and need to be edited.

4. On page 17, the second line from the bottom “Table 5 shows[0]”should be “Table 5 shows”

5. On page 23, the 11th line from the bottom “nonpersistant”should be “non-persistant”

6. Join figure 2c and figure 2d to figure 1.

**Level of interest:** An article of importance in its field

**Quality of written English:** Acceptable

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

I declare that I have no competing interests