



PESTICIDE MAXIMUM RESIDUE LIMIT IN PECHAY ESTABLISHED BY CODEX, PHILIPPINES AND MAJOR PRODUCING ASIAN COUNTRIES

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Executive Summary

Pechay (*Brassica chinensis*) is a popular leafy vegetable among Filipinos due to its nutritional value (Fahey et al., 2016; Nacua et al., 2019), availability (Gonzaga et al., 2017) and price (Nacua et al., 2019). It is among the commonly consumed leafy vegetables at grams per day per capita (Department of Science and Technology – Food and Nutrition Research Institute [DOST-FNRI], 2022). *Pechay* production is considered a good source of income as it is a non-seasonal crop with short harvest duration (Gonzaga et al., 2017). However, *pechay* is prone to pest and diseases and use of pesticides is inevitable (Zhang et al., 2006; Gonzaga et al., 2017). As such, *pechay* may contain excessive pesticide residues (Wang et al., 2019; Yang et al., 2022). Philippine National Standard (PNS) on Good Agricultural Practices for Fruits and Vegetable Farming (PNS/BAFS 49:2021) and Maximum Residue Limits (MRL) of Pesticides for Selected Local Crops (PNS/BAFS 265:2018) have been developed to provide producers with guidance in producing *pechay* safely and of good quality (BAFS, 2023). A PNS specifically addressing the acceptable limits for pesticide residue in *pechay* is yet to be established. In 2021, the Department of Agriculture Regional Field Office II, Integrated Laboratory Division (DA-RFO II, ILD) requested the DA-BAFS to develop a standard for pesticide Maximum Residue Limits (MRL) in *pechay*. This is in support to their efforts in promoting pesticide-safe vegetables.



For this reason, this study was carried out to provide information on established MRL for *pechay* or its commodity grouping for use in the development of the PNS.

This study, conducted through secondary research, compared MRL applicable for *pechay* established by Codex, ASEAN, Department of Agriculture - Fertilizer and Pesticide Authority (DA-FPA) and with those established by European Union (EU), United States of America (USA), China, South Korea, Japan and Indonesia.

The key findings of this study are as follows:

1. Codex established only one pesticide MRL specific for *pechay*, metaflumizone (6 mg/kg), which had corresponding MRL in South Korea (5 mg/kg), Japan (10 mg/kg), and Indonesia (6 mg/kg). The MRL value by South Korea was stricter, while Japan MRL was more lenient. MRL set by Indonesia was harmonized with Codex.
2. DA-FPA registered only one pesticide MRL specific for *pechay*, cartap/cartap hydrochloride (3 mg/kg). Corresponding MRL was found in South Korea (1.5 mg/kg) and Japan (2 mg/kg).
3. The Codex established 21 pesticide MRL for leafy vegetables that are applicable for *pechay*. Four pesticide active ingredients have corresponding MRL in ASEAN, 17 in USA, 14 in China and 15 in South Korea. All four pesticide MRL in ASEAN (cypermethrin, deltamethrin, spinosad, paraquat) and three pesticide MRL (spinosad, tebufenozide, and thiamethoxam) in USA and China were harmonized with Codex. Eight pesticide MRL (cyantraniliprole, cypermethrin, boscalid, dinotefuran, fluensulfone, fluopicolide, spiromesifin, spirotetramat) in the USA and three pesticide MRL (clothianidin, myclobutanil, thiamethoxam) in South Korea were more lenient than Codex. One pesticide MRL (paraquat) in China, four (chlorantraniliprole, clothianidin, paraquat, sulfoxaflor) in the USA and 11 pesticide MRL in South Korea were stricter than Codex. South Korea MRL had the

most difference with Codex MRL, where 14 out of 15 pesticide MRL were not harmonized, while only one pesticide MRL (tebufenozide) aligned with Codex.

4. There was a difference in commodity grouping by the Codex and DA-FPA. The Codex specified *pechay* as brassica leafy vegetables and was grouped separately from brassica vegetables, while DA-FPA had one classification, brassica (Cole) leafy vegetables, covering brassica vegetables and brassica leafy vegetables. The DA-FPA specified that pesticide MRL for cabbage is applicable to *pechay*. Of the 52 registered active ingredients for cabbage, only 26 active ingredients had pesticide MRL.
5. Differences in the pesticide MRL can be attributed to differences in the data used for evaluation, such as allowable daily intake (ADI) and food consumption, differences in the food classification, and the time of adoption of the MRL.

From the findings, the following are the major recommendations:

1. Adopt the Codex pesticide MRL for metaflumizone (6 mg/kg) with due consideration to consumer safety of Filipinos, to be consistent with the obligations under the World Trade Organization (WTO) – Sanitary and Phytosanitary (SPS) Agreement.
2. The pesticide MRL for cartap/cartap hydrochloride (3 mg/kg) registered by the DA- FPA may be included in the PNS provided that DA-FPA conducts re-evaluation of risk assessment performed on the establishment of MRL for cartap.
3. Consider the development of PNS on pesticide MRL in leafy vegetables to cover more commodities produced under a similar pattern of good agricultural practices.
4. The DA-FPA should harmonize its crop groupings with that of Codex and consider re-evaluation of the pesticide risk assessment performed for the

registered pesticide active ingredients with missing MRL and those that are not recognized in Codex (i.e., cartap). Otherwise, the conduct of new risk assessment is recommended.

