

PESTICIDES RESIDUE ANALYSIS OF FRUITS FOR FARM ACCREDITATION SCHEMES IN SABAH, MALAYSIA

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ABSTRACT

The Department of Agriculture Sabah initiated pesticide residue analysis in fruits for myGAP and myOrganic farm accreditation schemes since 2004 and 2010. Pesticides residue analysis is one of the requirements in the farm certification process. The aim of this project is to ensure the safety and quality of local agricultural produce. The approach is not only beneficial to consumers but also to the environment while ensuring no health implications on farmers and workers. From 2014 to 2018, a total of 176 samples of fruits out of 1,053 samples of agricultural produce have been analyzed for pesticides residue. Fruit samples were analyzed for ethylene bis-dithiocarbamates (EBDC), organophosphorus (OP), organochlorine (OC), and synthetic pyrethroid (SP) pesticides; commonly used by farmers in Sabah. The headspace method was used to analyze EBDC pesticides and the “quick, easy, cheap, effective, rugged, and safe” (QuEChERS) method for OP, OC, and SP pesticides. Of the 176 fruit samples analysed, 161 samples were for myGAP and 15 samples for myOrganic certifications. The violation rates over the five-year period for myGAP are 2% and for myOrganic, 7%. Of the 176 samples analyzed, 2% of the samples were found exceeding the maximum residue limit based on the 16th Schedule, Food Act 1983. Cypermethrin, chlorfenapyr, and dimethoate pesticides were detected in the 2% violated samples. To date, a total of 58 fruit orchards have been certified for farm accreditation schemes which covers an area of approximately 650 hectares. Seventy-one farms with an area of 243 hectares are at the auditing stage while 50 farms covering an area of 118 hectares are at the land inspection stage. The Department of Agriculture Sabah will continue to promote farm certification to educate farmers on the importance of Good Agricultural Practices (GAP) to enhance market acceptability of local agricultural produce to neighboring countries.

Keywords: pesticide residue, myGAP, myOrganic, maximum residue limit, cypermethrin, chlorfenapyr, dimethoate