Brazil has a great diversity of fruit threes. Many of them are still not known by the majority of the population, but have great potential to be exploited. Fruit pulp industries generate large amounts of solids by-products that can still have important compounds to human nutrition. Drying is a solution for further utilization of fruit by-products in other products. The aim of the present study was to evaluate the effect of air-drying conditions on antioxidant capacity of three Brazilian native fruit by-products: uvaia (Eugenia pyriformis), cambuci (Campomanesia phaea) and grumixama (Eugenia brasiliensis Lam.). By-products were obtained from a small fruit producer and processor in the State of São Paulo, after frozen pulp processing. The samples received or not a centrifugation pre-treatment and then were dried at 40, 60 or 80°C in conventional oven until constant weight (drying times between 4.25 and 24h). Freeze dried by-products were used as a control. Pulp and entire fruit fractions were also obtained, freeze dried and evaluated. Antioxidant activity (ORAC, FRAP, ABTS), total phenolic content, total anthocyanins and organic acids (citric, malic, tartaric and ascorbic) were evaluated for the samples. Total anthocyanins were evaluated only for grumixama fractions and organic acids were evaluated for pulp, fruit, by-product (control) and dried by-product with the highest phenolic content. The by-products still presented important compounds to human nutrition, such as high total phenolic content, besides high antioxidant activity. Comparing the by-product and the pulp, the total phenolic content of the by-products was 1.9, 1.6 and 4.9 times higher for uvaia, cambuci and grumixama, respectively. In general, for the three fruits, the assays with previous centrifugation step presented higher total phenolic content and antioxidant activity when compared to the assays where the product was directly dried. For grumixama, the by-product presented 7.1 times the quantity of total anthocyanins of the pulp. After drying, from 52 to 92% of total anthocyanin content remained in the dried samples, compared to the control. The main organic acids present in the three fruits were citric (grumixama and cambuci) and malic (uvaia). As expected, after drying, ascorbic acid was no longer present in the dried by-products. Finally, different drying conditions may influence the content of bioactive compounds and antioxidant capacity of dried by-products, but all the processing conditions evaluated led to products that may still be considered a source of bioactive compounds that can be used by food industries.

Keywords: Fruit, by-product, drying, antioxidant activity, phenolic content