The effects of anthocyanin-rich Myrtaceae fruits peel powder on fibrosis-associated hepatocarcinogenesis in mice

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Fruits from Myrtaceae family, as jabuticaba (Myrciaria jaboticaba (Vell) O. Berg), jamelão (Syzygium cumini (L.) Skeels) and jambo (Syzygium malaccense), raise interest due to their high levels of anthocyanins, antioxidant compounds, and, thus, potential for chronic disease risk reduction¹. Therefore, the study evaluated whether the ingestion of jabuticaba, jamelão or jambo peel powder attenuates fibrosis-associated hepatocarcinogenesis. Neonatal female C3H/Hej mice were submitted to a diethylnitrosamine (DEN)/carbon tetrachloride (CCl₄)-induced fibrosis-associated hepatocarcinogenesis model. Mice also received basal diet or basal diet containing 2% of jabuticaba, jamelão or jambo dehydrated peels for 10 weeks. HPLC analysis of dehydrated fruit peels revealed high levels of anthocyanins in jabuticaba (802.89±22.88 mg/100g), jamelão (575.95±9.42 mg/100g) and jambo (156.05±10.39 mg/100g). These fruits displayed different types of anthocyanins (Figures 1-3). Interestingly, only the ingestion of basal diet containing jamelão peel powder attenuated liver fibrosis compared to DEN/CCl₄ (Figure 4). Mechanisms will be evaluated, as well as the effects of these fruits on the development of preneoplastic/neoplastic liver lesions.

References
¹He et al., 2010: https://doi.org/10.1146/annurev.food.080708.100754
Figure 1. Chromatogram of the anthocyanins of jabuticaba peel powder: (A) cyanidin-3-glucoside and (B) delphinidin-3-glucoside.

Figure 2. Chromatogram of the anthocyanins of jamelão peel powder: (A) delphinidin-3,5-diglucoside, (B) cyanidin-3,5-diglucoside, (C) petunidin-3,5-diglucoside and (D) malvidin-3,5-diglucoside.
Figure 3. Representative chromatogram of the anthocyanin of jambo peel powder: (A) cyanidin-3-glucoside and (B) cyanidin-3,5-diglucoside.
Figure 4. Effects of Myrtaceae fruits peel powder on liver fibrosis (Sirius red). Data are mean + S.D. n=13-14 mice/group. Different letters correspond to statistical difference by ANOVA and post hoc Tukey test (p<0.05).