An Investigation Into the Concentration of Bisphenol A in Receipts From Major Australian Supermarkets and Its Potential Dermal Transfer

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Bisphenol A (BPA) is a synthesized chemical used in the coating of thermal paper for inkless printing, such as in supermarket receipts. It is a known endocrine disruptor linked to heart disease and certain cancers. This investigation aimed to quantify the amount of BPA in Australian till receipts and to determine its potential dermal transfer. The first experiment determined the concentration of BPA on five different Australian supermarket receipts by measuring the average absorbance of BPA using UV- VIS spectrophotometry and calculating the BPA concentration using Beer's law. All receipts had similar concentrations ranging from 0.121 to 0.177 μg BPA/g receipt with no significant differences ($P = 0.16 > 0.05$). In the second experiment, the amount of BPA transferred dermally on contact was determined by pressing fresh pig skin sections, an analogue for human skin, onto a receipt for 1, 5 and 10 mins using uncontacted pig skin as a control. The skin was rinsed with ethanol, which was measured for the presence of BPA using fluorescence spectroscopy. The results showed that BPA was transferred from the receipts onto pig's skin after only one minute contact time, at an average of 317 mg BPA/g receipt, with no significant difference between the different contact times tested. In conclusion, BPA is present in similar amounts on all Australian supermarket receipts tested and can be transmitted onto pigskin by direct contact. These results have significant implications on the Australian population and public awareness should be raised.

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