Addition of Astra-Ben 20™ to Sequester Aflatoxin During Protein Extraction of Contaminated Peanut Meal.

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Peanut meal is an excellent source of high quality protein; however, the relatively high aflatoxin concentrations typically associated with this commodity currently limit applications within the feed market, in addition to being prohibitive for any future food ingredient markets. Accordingly, the efficacy of a sodium bentonite clay, Astra-Ben 20™ (AB20), to sequester aflatoxin from contaminated peanut meal (110 ppb aflatoxin) during aqueous protein extraction was studied. Peanut meal dispersions (10% solids) were adjusted to pH 2.0 or 8.0 and randomly assigned to one of three treatments: control (no clay), 0.2% AB20 (w/w), or 2% AB20 (w/w). Samples underwent a series of separation steps and both the soluble and insoluble fractions were subsequently tested. AB20 addition significantly (p < 0.05) reduced the aflatoxin concentration in both water soluble and insoluble fractions such that detectable aflatoxin was less than 2 ppb on a dry weight basis for all treatments at 2% AB20 addition, and all but the pH 2.0 insoluble fraction (~40 ppb) were below 20 ppb at 0.2% AB20 addition. The pH of the soluble samples did not significantly affect the capacity of AB20 to bind aflatoxin. Protein solubility and total soluble solids content were significantly (p < 0.05) lower for soluble fractions after 2% AB20 when compared to the respective controls. These results suggest that AB20 could be used as a processing aid to reduce or eliminate the aflatoxin from peanut meal, enabling this high protein material to be processed into value added ingredients for expanded feed and eventually food markets.