Sample 1 (Single author)

Dietary Bioactives for Tissue Regeneration and Skin Care. DEBORA ESPOSITO. North Carolina State University, Plants for Human Health Institute, 600 Laureate Way, Kannapolis, NC 28081 and Department of Animal Science, 120 Broughton Drive, Raleigh, NC 27695. Email: daesposi@ncsu.edu

The topical application of plant derived preparations to promote wound healing or skin regeneration is a common practice in many cultures, yet both the chemical characterization of the preparations and studies aimed at identifying the underlying mechanisms involved in the wound healing and tissue repair processes are surprisingly scarce. Dietary phytochemicals are known to exhibit a variety of anti-inflammatory and anti-microbial activities, which are the very desired properties for wound healing and tissue repair bioactive candidates. From Alaskan berries to Easter lilies, there are hundreds of remarkably common herbs, flowers, berries and plants that restore inflammatory and metabolic balances. Underlying mechanisms by which plant bioactives produce a therapeutic effect in fibroblast and keratinocyte cell cultures were determined. Cell migration assays offer the distinct advantage of not damaging the cells. Cell exclusion zone format also allows continuous visual assessment of the cells throughout the experiment with the ability to acquire multiplexed data. Information was collected regarding morphology, velocity, distance and direction of migrating or invading cells as well as additional phenotypic effects of test compounds. This research approach is a prelude to establishing potential cosmeceutical applications (skin care) using plants as a prime ingredient.

Sample 2 (multi author)

Berry Anthocyanins and Metabolic Syndrome. J. Overall[1,2], S. A. Bonney[1,3], D. Esposito[1,3], and S. KOMARNYTSKY[1,2]. [1]Plants for Human Health Institute, North Carolina State University, North Carolina Research Campus, 600 Laureate Way, Kannapolis, NC 28081; [2] Department of Food, Bioprocessing & Nutrition Sciences, North Carolina State University, 400 Dan Allen Drive, Raleigh, NC 27695; and [3] Department of Animal Science, NC State University, 120 Broughton Drive, Raleigh, NC 27695. Email: komarnytsky@ncsu.edu

Overconsumption of energy dense foods and sedentary lifestyle are considered as major causes of obesity-associated insulin resistance and abnormal glucose metabolism. Results from both cohort studies and randomized trials suggest that anthocyanins from berries may lower the metabolic risks, however these reports are equivocal. The present study was designed to examine effects of 6 berries with structurally diverse anthocyanin profiles (normalized to 400 µg/g total anthocyanin content) on development of metabolic risk factors in the C57BL/6 mouse model of polygenic obesity. Diets supplemented with blackberry (mono-glycosylated cyanidins), black raspberry (acylated mono-glycosylated cyanidins), blackcurrant (mono-and di-glycosylated cyanidins and delphinidins), maqui berry (di-glycosylated delphinidins), Concord grape (acylated mono-glycosylated delphinidins and petunidins), and blueberry (mono-glycosylated delphinidins, malvidins, and petunidins) showed a prominent discrepancy between biological activities of delphinidin/malvidin- versus cyanidin-type anthocyanins that could be explained by differences in their structure and metabolism in the gut. Consumption of berries also resulted in a strong shift in the gastrointestinal bacterial communities towards obligate anaerobes. Further work is needed to understand mechanisms that lead to nearly anoxic conditions in the gut lumens, including the relative contributions of host, diet and/or microbial oxidative activity, and their implication to human health.