Abstract
To evaluate the possible effects on insulin function, 49 herb, spice, and medicinal plant extracts were tested in the insulin-dependent utilization of glucose using a rat epididymal adipocyte assay. Cinnamon was the most bioactive product followed by witch hazel, green and black teas, allspice, bay leaves, nutmeg, cloves, mushrooms, and brewer’s yeast. The glucose oxidation enhancing bioactivity was lost from cinnamon, tea, witch hazel, cloves, bay leaf and allspice by poly- (vinylpyrrolidone) (PVP) treatment, indicating that the active phytochemicals are likely to be phenolic in nature. The activity of sage, mushrooms, and brewers’s yeast was not removed by PVP. Some products such as Korean ginseng, flaxseed meal, and basil have been reported to be effective antidiabetic agents; however, they were only marginally active in our assay. Our technique measures direct stimulation of cellular glucose metabolism, so it may be that the active phytochemicals in these plants improve glucose metabolism via other mechanisms or that this in vitro screening is not a reliable predictor of hypoglycemic effects in vivo for some products. In summary, the positive effects of specific plant extracts on insulin activity suggest a possible role of these plants in improving glucose and insulin metabolism.