Susceptible food to enzymatic browning, especially fruits and vegetables, represent a challenge to the food industry, because the speed with these reactions occur and the losses generated by them. Several compounds are used; however, few are effective in preventing this undesirable reaction. Research conducted with sulfites and organic acids have demonstrated potential to minimize enzymatic browning in several vegetables without compromising their safety. This paper presents an evaluation of the antibrowning potential of potassium metabisulfite, ascorbic acid and citric acid from apple (*Malus domestica* Borkh) Gala and potato (*Solanum tuberosum*) Monalisa minimally processed. Four concentrations were tested: 0%, 2%, 4% and 8% applied to the vegetables surface via appropriate technological process, wrapped in PVC film and stored at 8°C ± 2°C for 8 days. During this period the L*, a*, b* color parameters were measured, using a Minolta Chroma Meter CR200 colorimeter. It was observed already at low concentrations of additives (2%) less color difference (ΔE) because the lower darkening, ranging between 7.22 and 14.97 among treatments. Values of lightness (L*) remained elevated until the seventh day, indicating that the apples and potatoes remained clearer when compared with the control (without additives). The browning index (BI) varied between treatments and control between 25.6% and 60.27%, being lower for the treatment containing sulfite. The additive for better performance in this study was the potassium metabisulfite, indicating an inhibitory effect over the period of storage.