Edible films incorporated with natural antimicrobials have the potential to be used as ingredients in organic bagged salads to control contamination from pathogenic bacteria. The objective of this study was to investigate the antimicrobial effects of Generally Recognized as Safe (GRAS) listed carvacrol and cinnamaldehyde incorporated into apple, carrot and hibiscus-based edible films against *Salmonella* Newport in bagged organic leafy greens. The leafy greens tested included romaine and iceberg lettuce, and mature and baby spinach. Each leafy green sample was washed, dip inoculated with *S*. Newport (10⁷ CFU/ml) and dried. Ten grams of each sample was put into a Ziploc® bag. Edible films pieces (0.3 g) were then added into the bag and mixed well. Control edible films without any antimicrobials were also included. The bags were sealed and stored at 4°C. Samples were taken at day 0, 3, and 7 for enumeration of survivors. On all leafy greens, the 3% carvacrol-containing films showed the greatest killing effects against *S*. Newport. All 3 types of 3% carvacrol-containing films reduced *Salmonella* population by 5 log CFU/g at day 0. The 1.5% carvacrol-containing films reduced *Salmonella* by 1-4 logs CFU/g at day 7. Films with 3% cinnamaldehyde showed 0.5-3 logs CFU/g reductions on different leafy greens. Films with 0.5 and 1.5% cinnamaldehyde and 0.5% carvacrol also showed varied reductions (0-4.4 logs) on different types of leafy greens. In general, carvacrol films were more effective than cinnamaldehyde films. The antimicrobial films were most effective against *Salmonella* on iceberg lettuce. This study demonstrates the potential of edible films containing carvacrol and cinnamaldehyde to inactivate *S*. Newport on organic leafy greens.