New study shows that cocoa flavanols can be preserved during cooking and baking

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In a study published this month in the *Journal of Food Science*, scientists from The Hershey Company and Brunswick Laboratories (Norton, MA) showed that over 85% of the cocoa flavanols were preserved in recipes for chocolate frosting, hot cocoa drink and chocolate cookies. In chocolate cakes, antioxidant activity and cocoa flavanols could be largely retained by using a combination of baking powder and baking soda.

The scientists initially saw that 50 to 95% of the flavanols were lost in making chocolate cakes. After further investigation, they found that the use of baking soda in the chocolate cake recipe was associated with increased pH of the cake, darker color, and a loss of flavanols and antioxidant activity during the baking process. Use of only baking powder in the cake recipes allowed complete retention of the antioxidant activity and cocoa flavanols, but resulted in a flat cake. By partially substituting baking powder for the baking soda, the cake pH was moderated and almost all of the flavanols were retained while still resulting in a cake with acceptable color and height.

According to the published report, numerous studies have reported on the fate of naturally occurring flavanols during cocoa bean fermentation and roasting, but there's been little investigation into what happens during cooking with cocoa powder. In this study, researchers selected recipes from cookbooks for a variety of cocoa-containing foods such as chocolate frosting, hot cocoa drinks, chocolate cookies and chocolate cakes. The recipes were prepared using Hershey's Natural Cocoa Powder and then measured for antioxidant activity, total polyphenols, and

flavanols.

"According to our estimates, approximately one third of cocoa ingredients used in the United States is cocoa powder, which is used in a diverse array of chocolate-flavored foods including beverages, cookies, cakes, snack bars and ice cream. Natural cocoa powder, like most dark chocolates, is a concentrated source of naturally occurring flavanols and can be a significant dietary source of flavanols" says David Stuart, Ph.D., Director of the Hershey Center for Health and Nutrition.

Although previous studies have reported on the effect of fermentation and roasting on cocoa flavanols, this is the first paper to report on the effect of common cooking processes on cocoa flavanols in a wide variety of products ranging from a hot cocoa drink to chocolate frosting and chocolate cake. This study showed that the choice of leavening agent and its effect on pH during baking is a key factor in the levels of antioxidant activity and flavanols in a baked product.

Source: The Hershey Company