Allergy Prevention: Identifying Milk Antigens in Food

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Allergy can cause itching, hives and even anaphylactic shock that can lead to death. The difficulty of identifying foods that present the antigen to which the person is allergic causes the need of an easy method to detect these proteins. For this, the project aims to create a handle and rapid kit that evidences the presence of beta-lactoglobulin in foods using aptamer adsorbed to latex spheres (A reagent) in visible agglutination. Optimum concentration curve agglutination tests were made, three times, by putting together certain concentrations of the A reagent warmed to 37oC with decreasing concentrations of powder milk in a test plate and mildly agitated. Results were analyzed by visual interpretation, tests were considered positive when small amounts of agglutination mass were detected and negative when the sample remained milky. It was observed that agglutination of milk prepared concentrated, pure, diluted 1:10 and 1:2 with the A reagent diluted 1:4 was slightly significant after fifteen minutes of reaction. In the milk with aptamer diluted 1:16, agglutination was quickly and easily perceived with pure milk, but no agglutination occurs when milk was diluted 1:10. Using the aptamer diluted 1:8 with milk dilution of 1:10 and 1:20 there was the best point for binding since the results were seen in less than two minutes and have agglutinated even when using small amounts of milk, which is the situation that is expected to happen on a daily basis, in the search of small amounts of milk. So it was concluded that, so far, the data shows promising results in order to develop a kit in the future for quick identification of beta-lactoglobulin using aptamer dilution of 1:8. Nevertheless, more experiments need to be done to confirm the kit and to add molecular validation.

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