

Healthy fried food, chicken, vegetables, and fish snacks using response surface with coating aloe vera.



The effect of coating with aloe vera gel on oil absorption and sensory properties of fried chicken meat, Today, according to consumers' desire for low-fat foods. It is expected that edible oil barrier coatings will become an essential strategy for launching healthier fried products and developing diversified value-added products, such as aloe vera coating, a healthy ingredient well-known worldwide. Aloe Vera is considered a natural sorbent material and has practical advantages for oil spill cleanup, whose advantages are their low-cost, feasibility for real-life applications, and environmental adaptability, absorption capacity was determined for aloe. These products though taste good, pose health problems due to high calorie and cholesterol intake. People now become health cautious and demand less dense and low-calorie foods and reduce the absorption of oil in fried products. Using gums (hydrocolloids) as an edible coating (EC) can be decreased the oil uptake (OU) problem associated with fried products. The gum-based edible coating has been effective in decreasing the oil uptake in deep-fat fried products. The efficiency of natural gums in decreasing the OU during deep-fat frying.



Aloe vera plant gel as a hydrocolloid composition to produce fortified flour cover before the frying step, frying efficiency and percentage of fat reduction due to coverage was done with, the effect of coating fried chicken meat with different concentrations of aloe vera gel as a colloid compound. (Concentrations of 0, 3 and 5% by weight-volume) along with salt or other gums combined with aloe vera as agar, methylcellulose, alginate, etc., with flour before on oil absorption and its qualitative properties (oil absorption, moisture content, frying efficiency, flavor, and color. The total volume of absorbed oil is equal to it is the amount of water separated from the food during frying. It is observed adding 5% aloe vera powder w/w total flour, derives less moisture during frying than, keeping their moisture, which shows the ability of Aloe vera gel in maintaining moisture and preventing water evaporation.



Aloe coating picks up of batter formulations and moisture content, oil content, texture, porosity, and color. Aloe Vera polysaccharides gums were effective in controlling moisture loss and oil uptake, producing crisp and porous products in deep-fat fried. The porosity of the fried chicken coated with a batter containing aloe vera with guar or xanthan gums which is a good indicator of

volume was about 3.6 times higher than the product coated with the control batter. Aloe Vera coating can reduce the excessive oil uptake due to their interesting thermos-gelling properties and at the same time, they are invisible and have no negative influence on the sensory attributes of fried foodstuff. In deep frying, simultaneous exchange of heat, moisture, and oil takes place between the product and heating medium, mass transfer phenomena in deep frying involve the outflow of moisture and intrusion of fat caused by the transfer of heat energy to the product.

One of the main drawbacks of deep frying is the repeated frying and higher fat content, making sustainable food products and diminishing healthy risks for the consumers, making with green coatings (aloe vera). Deep-fried battered, breadcrumb and breaded coatings provide foods with texture, flavor, reduced moisture loss and oil uptake, excellent coatings for deep-fried prawns or fried chicken or fried fish or fried pan French fry's potatoes and Japanese shrimp and vegetable tempura, Milanese meat, and vegetables are covered, aloe coating have low-fat content with improved nutritional values, higher crispiness, and better palatability, different edible coating materials and their effectiveness on fried food are reviewed. Synergistic action with other pre-treatment technologies is.

Deep fat frying of various kinds of foods coated with batter is a popular cooking procedure in many countries, wherein the heat is transferred from oil to the product, water is evaporated, and oil is absorbed. Increasing yield and improving quality in fried poultry products. The addition to managing yield through batter viscosity, cooking time and temperature, and oil quality, poultry further processors can add edible coatings such as aloe vera gel.



High-fat content in fried products reduced their shelf life and causes a reduction in product total acceptability to consumers. Aloe vera based-coating is hydrocolloid gum that has been effective in decreasing Oil Uptake in deep-fat fried products. The effect of coatings made by new and natural colloidal suspensions on the heat and mass transfer (HMT) and OU of deep-fat fried products such as eggplant, potato, carrot, banana, cereal products, puri, cassava, shrimp, chicken nuggets, fried fish, Italian Milanese, etc.



Aloe vera coating decreased the heat transfer coefficient (HTC) and OU during the deep-fat frying process. In addition, coated fried products have better textural characteristics, chewiness, juiciness, and higher total acceptability scores, due to decreasing in moisture loss, lipid oxidation, and OU during deep-fat frying, edible ingredients in the batter to improve coating performance and blending. Dough water absorption was increased by the addition of aloe vera. In all the treatments, the extensibility of dough was significantly decreased with an increase in the resting time from 45 to 135 minutes, which is probably due to the water-binding ability of aloe vera ($P < 0.05$.) Formulation of aloe vera coating pastes from guar gum (0.25-1 percent), gelatin, gellan gum, kappa carrageenan, methylcellulose, pectin or whey protein isolate reduces absorption oil in fried products.



Role of pressure and moisture migration, in addition to the phases of frying, it is very important to note that the pressure between the oil and moisture, for example, in a chicken nugget is what really defines the movement of these two substances, positive pressure within the food product

during frying causes an increase in moisture loss whereas negative pressure allows for higher oil uptake due to suction. Yield is very important in fried foods. Even though the poultry industry can add up to 30% breading to make a fried product (greater than 30% are referred to as fritters), there is still considerable yield loss associated with the cooking of the product. Additionally, management of the par-fried and fully cooked processes can impact yield. During par-frying and deep-fry cooking, moisture migrates from the meat to the outer surface of the product and can be lost in the oil. This migration causes yield loss from the product and can lead to some decrease in consumer acceptance.



Aloe Vera coating is a thin layer of edible material that can be used on a food surface to control the mass transfer of moisture, gas, aroma, and/or fats, aloe vera is food grade, which has very good film-forming characteristics and is resistant to fat and oil transmission as well as oxygen transmission. These properties help to reduce the final oil uptake of fried foods as they form thermally induced gelatinous coatings. Aloe vera coating for breaded beef also had a lower moisture loss and lower fat uptake in both the core (meat only) and crust (batter and breading only), during the cooking or frying process, aloe vera with methylcellulose coagulates and forms a protective layer or barrier between the batter and breading and the meat. This coagulation effect binds the meat and the batter during frying and can explain the higher percentage of moisture retained in the interior meat product.



Aloe coating for fried chicken poultry nuggets, using aloe vera with methylcellulose has the ability to bind up to 40 times its weight in water, therefore coating layer helps prevent moisture loss from the meat and helps to prevent excess uptake of the oil, aloe vera + colloid gum, when added to the pre-dust, can improve yield, decrease moisture loss and decrease fat uptake, texture analyses were also conducted to determine if differences existed with consumer acceptability. Aloe vera + methylcellulose in fried food items such as chicken nuggets, are added into flour and then pre-dust, batter, and bread on the yield and texture of the chicken nuggets. Aloe vera + methylcellulose coating, added in the pre-dust was effective at increasing the percentage of pre-dust, batter, and breading pick-up. Creep compliance is a very sensitive test that determines the textural properties of fried chicken food in its natural cooking process. In addition, both control and aloe+ methylcellulose were highly acceptable to consumers in a taste panel. Consumers did not detect any significant difference between the taste of control without disturbing the texture of the product. Crust formation and browning also take place giving the product an attractive golden appearance and a crispy mouthfeel. The amount of oil uptake is directly proportional to the amount of moisture lost.



Aloe coating for fried zucchini and aloe vera resulted in an increase in dough development time (DDT) but dough stability decreased. Aloe vera addition to the bread, aids to prepare a low-fat deep-fried zucchini slice, carrots, onions, eggplant, and other vegetables depending on every country. Aloe Vera coating base offers maximum moisture content and hardness, minimum oil content, and total color difference (ΔE). The sensorial evaluation revealed that the deep-fried coated zucchini slices prepared under optimum conditions had higher overall acceptability. It can be concluded that Aloe vera gel coating is a sustainable green approach to developing new products for low-fat deep-fried food and fried bakery.



Aloe vera powder spray dried by AMB Wellness, preserves the structure, and increases the internal volume of sorbents. Aloe vera pretreatment coating absorption is a more selective process since the colloids do not allow the absorption of water, the forming, coating, and frying of food products are a mainstay of the food processing industry with many types of products requiring mass processing with industrial food machinery. Formers would be used to physically form a product on a production line, Coating/enrobers/tumblers for covering or coating the product, for example, flour, batter, gums, or spices. Fryers would be used to finally fry the formed and coated product. Example products would be, burgers, chicken nuggets, Wiener Schnitzel, Italians Milanese, Scott's collops, silpancho breaded chicken breasts/chicken kiev, pakoras, and falafel. Aloe vera coating and wheat flour in the phase of the breaded stage, provide healthy and nutritious foods through the optimization of frying processes and products. Frying is majorly a surface phenomenon; modification of the product surface has proven to be the most effective procedure in reducing oil uptake. Aloe coating has been used as one of the techniques to modify product surfaces. Aloe vera powder showed to be the best material for coating, depending on the substrate which can reduce oil uptake by 35–40%, application of Aloe Gel Powder coating as a pre-dusting agent, although the technique has been shown to be effective in enhancing oil reduction in deep-fried foods. According to these, improving the frying technology, changing the frying medium, and coating treatment can reduce the amount of oil in fried foods. Among these methods, coating treatment is the most common method to reduce the oil content. Aloe Vera coatings usually have better performance due to polysaccharide contents. The performance of coatings depends on the type of food and protein. In addition, the

oil resistance of Aloe Vera coatings can be improved by adding the plasticizer (agar, xanthan, or methylcellulose), combination with other components, and cross-linking treatment.



In the frying process, there is dehydration of food; the space left by the evaporated water is mostly occupied by oil. Thus, it is important to know both processes for moisture loss and oil uptake. Deep-fat fried foods usually exhibit high-fat content, which contributes to their special attributes, such as taste and texture.



Aloe vera is a novel source of natural antioxidants and preservatives in muscle foods and to evaluate the effect of Aloe vera on the storage quality of aerobically packaged chicken nuggets. Aloe vera powder is incorporated in flour, at various levels, namely, 0.5%, 0.15%, and 0.30% of the total weight of flour. The products were analyzed for proximate composition and physicochemical and sensory parameters. Chicken nuggets incorporated with the optimum level of Aloe vera (0.30 percent) along with control nuggets (0 percent Aloe vera) were aerobically packaged and assessed for lipid oxidation, physicochemical and microbiological characteristics under refrigerated (4°C) conditions, pH, crude protein, ether extract and ash content of the nuggets showed significant ($p < 0.05$) decreasing trend with increasing levels of Aloe vera; however, there was a significant ($p < 0.05$) increase in the moisture content, emulsion stability, and cooking yield.

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