Physico chemical and biological studies on Tortilla bread fortified with soybean flour and dried milk

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125SUMMARYWhite com crop is one of the most important strategic corpsin Egypt because it considered to be the first reason in developingboth of meat and diary industries since it participate with about 70%in feeding blackberries industry in addition to admission in Someeconomical industries .This study was carried out to usee of three varieties of whitecom (single crossIO~tree way crosS310 ~ Giza 2) for the production oftortilla bread from complete grain where it considered to be analternative bread that applied in the Egyptian market for growingthe Egyptian palate on new dietary habits.This work was. carried oUt to investigate possibility of usingthe com in the prodnction of tortilla bread to compensate theshortage of the locally wheat used in grown breadmaking.The partial Supplementationof com tortilla with soybean flourin order to improve its quality and nutritionalvalue was studied.Three different Com Varieties were used for tortilla production . Theparameters detennined were the proximate analyses of the flour ,amy10graph pasting temperature, peak viscosity for 15 min. height~50°C viscosity after calcium hydroxide addition.All ingredients used in preparation of tortilla bread and bakedproduct were chemically analyzed (moisture, protein, ash ,fiber,total carbohydrates , calcium , iron , zinc , COpper, magnesium).Total dry matter losses during cooking and washing of nixtamalwere detemlined in the different com varieties.Summary--------126Defatted soybean (heated or non heated) flour were added tothe masa in 5 , 10 and 15% of the weight of the corn grains. Thesupplemented tortilla were chemically. physically and evaluated incomparison with that made from 100% corn .Determined the biological effects of feeding the supplementedtortilla with (heated or non heated) and defatted soybean , and driedmilk powder on feed efficiency, body weight and gain body weight• also determining serum blood analysis i .e cholesterol ,triglycerides , lipids. total protein. globulin and albumine , glucoselevels. GPT and GOT and the weight of liver, heart. kidneys andspleen.The results can be summarized in the following :-1- All kinds of com varieties can be successfully used for tortillamaking.2- Mineral analyses showed that calcium and magnesium werehigher in tortilla samples than in the com samples used.3- Visco / amylograph indicated that the starch viscosity wasincreased by cooling to 50°C in treated samples more than thatof the control.4- Tortilla made from fortified flour showed a considered increasein protein quality. defatted and heated soybean revealed thehighest protein content.Summary~-~-~.----~~- -----127S,,:,.Thefortification process had led to an increase in the-moisturecontent of the [mal product especially in those containingsoybean (defatted and heated) flour and it is more effective inincreasing the protein and fiber contents than other fortifiedflour.6- AU fortified tortilla samples were increase in weight and volumethan in control one.7- The statistical analyses had shown that there was insignificantdifference in some sensory characters.8- The fortification of tortilla flour with 5% non heated defattedsoybean from three way CroSS31O, 5% heated and defatted withvariety Giza 2 , while tortilla produced from 15% heated anddefatted soy bean from single cross., was the best tortilla.9- The results of biological evaluation indicated that final bodyweight increased in all experimental diets than basal diet after 4weeks.10- Triglycerides and total cholesterol levels were lowering effectsof soybean protein compared with casein .11- The results showed that , increase in total protein levels wasobtained in rats fed on

tortilla fortified with soybean.12- Finally , it could be concluded that , soybean (non heated orheated) and defatted can be used to reduce the cholesterol levelin blood and liver.Summary