Pepperpaste is a traditional fermented product consumed in many countries. In traditional way, mashed fresh fruits of Capsicum annuum are subjected to spontaneous fermentation and preserved by addition of high amounts of salt and boiling. Recently, inadequate amounts of traditionally produced pepper paste and consumer demand towards more hygienic products makes the industrial production of pepper paste inevitable. Industrial production of red pepper paste is dependent on some major factors: initial microflora, thermal processes, pH, total solubles solids, addition of salt and chemical preservatives. This study determined the effect of microorganisms, salt (0 and 1 kg(-1)) and Na-benzoate (1 kg(-1)) on the spoilage of semi and fully processed pepper pastes during storage. In addition to fresh pepper analysis, 7 experimental groups were produced by using various combinations of salt, Na-benzoate and four levels of total solubles solids (27 to 36 degrees Brix). Evaporation and pasteurization processes caused about 5 log CFU/g reduction in the number of initial bacteria (p = 0.05). After first evaporation step, low solid content (27 to 30 degrees Brix) samples without salt were spoiled by microorganisms during storage. Samples with high solid content (33 to 36 degrees Brix), salt and Na-benzoate were maintained their quality. In all of the experimental groups, Na-benzoate inhibited the activity of yeasts and moulds. However, its inhibitory effect on bacterial species was limited. The color change and the effect of various factors on color were also determined. The color of pepper paste was not affected by Na-benzoate but addition of salt and the amount of solubles solids had a darkening effect. The pH change in pepper paste is dependent on development of lactic acid bacteria. Lactic acid, salt, solid content and heat processes like pasteurization are important factors on the quality of semi and fully processed pepper paste during storage.