commercial jelly sample as control samples and the results were tabulated in Table 4.4. From the noticed data, it could be noticed that, addition of carotenoids by 0.0066% led to insignificant increase in recorded color value comparing to control sample. On the other hand, only the third addition ratio had significant decrease in respect to control sample.

Concerning jelly taste results (Table 4.4), it could be observe that, only the first addition ratio of sour orange peels carotenoids had significant improvement in jelly taste comparing to control sample. A significant disorder in jelly shape was observed at all studied ratios comparing with control sample. However, the lowest disorder was recorded for jelly sample prepared by addition of 0.0066% sour orange peel carotenoids.

For instance, insignificant reduction in overall acceptability was achieved for jelly sample prepared with the first addition ratio, while the two other studied ratios led to decrease the recorded value significantly from 17.41 in control sample to 15.08 and 13.58 for the samples prepared by the second and third addition ratios, respectively.

Generally, from the previous results, it could be noticed that no significant in most sensory characteristics of jelly sample prepared only by addition of 0.0066% of sour orange peels pigments was accrued. On the other hand, there were no significant differences between synthetic colored sample and natural colored samples for taste, texture and bleeding, when was carried out sensory evaluation of glazing jelly products.

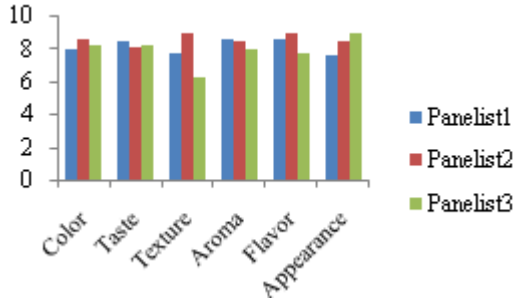

Figure 4.4.1: Sensory evaluation of the prepared jelly from extracted pigments

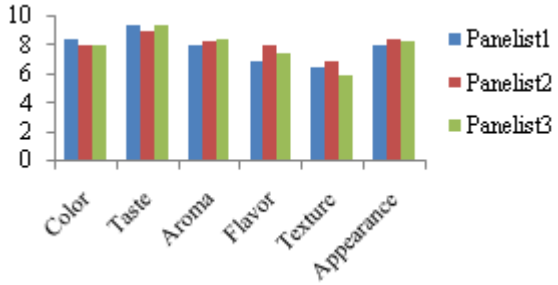

Figure 4.4.2: Score of control sample

4. Conclusion

Natural colors (carotenoids) play very important role in determining the acceptability of the food for consumers. Furthermore, some components of the carotenoids are precursors of vitamin A which is very important in human nutrition and food colorants, beside its anticancer properties. However, from the above mentioned results it can be concluded that:

The higher extraction yield of carotenoid pigments from Sour orange referred to such samples which could be considered as a good source of carotenoids comparing to Grape fruit. Ethyl acetate was the most efficient solvent in extracting natural pigments from Sour orange, while, that of Grape fruit were ethyl alcohol. The highest carotenoid extracted from Sour orange was 97.13 at pH 7.0, while, the highest for the carotenoid extracted from Grape fruit was 96.43. Using nitrogen gas had losses approximately in carotenoid content for all studied samples either treated or untreated with antioxidants. The Sour orange is the best source of carotenoids due to its very rich carotenoid content and heat tolerance followed by Grape fruit. The antioxidants treatments (either by α-tocopherol or BHT) relatively enhanced the carotenoids stability, but the highest effect was observed for the Sour orange. Lactose was the best carrier for the dispersion of Sour orange carotenoid, while, starch was more effective adsorbent coated carriers for pigments extracted from Grape fruit. Regarding to the overall acceptability of jelly samples, it could be showed that, slight insignificant reduction in overall acceptability was achieved for sample prepared with the first addition ratio 0.0066%. However, no significant in most sensory characteristics of jelly sample prepared only by addition of 0.0066% comparing to control.

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