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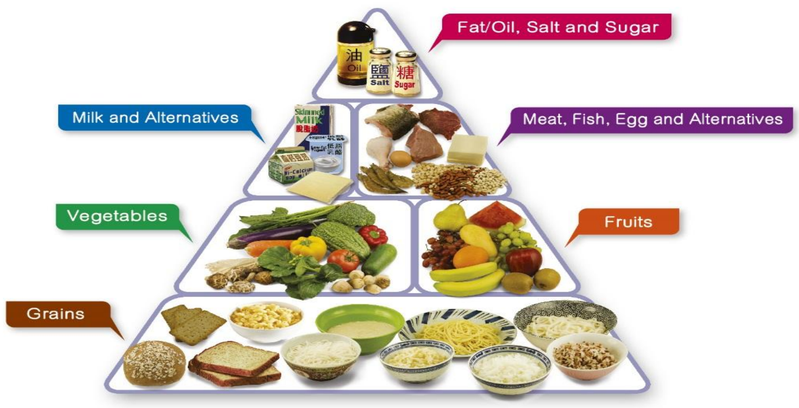
University of Ioannina

Christina Piperidi,[1] Aristoula Kontogianni,[2]
Konstantoula Akrida-Demertzi,[1] Georgios Tsaparlis[1] *

Are Industrial Foods always Good for a Healthy Diet?

[1] *University of Ioannina, Department of Chemistry, Ioannina, Greece*
[2] *University of Ioannina, Department of Primary Education*
* Corresponding Author's Email: *gtseper@uoi.gr*



An innovative approach to the applications of food chemistry in everyday life, chemistry students' knowledge and views were sought about the chemical constitution of industrial foods, their nutritional value, as well as the purpose, the necessity and the possible bad effects on health as a result of the use of chemical additives in these foods. This topic belongs to the so-called "relevant chemistry education" (Eilks & Hofstein, 2015), which originates in the instructional program of the famous American philosopher, psychologist and education reformer John Dewy. In the present proposal we present part of the findings, concerning students' views about the content of industrial foods as described in the labels of these food, as well as their views and knowledge about healthy diet and the basic constituents of foods (see Figure 1). The study was carried out in academic years 2014-15 and 2015-16 with students attending the compulsory practical course on "Analysis and Technology of Foods". This course is taught in the 6th semester (3rd year) of the chemistry major program, consisting in total of eight semesters (four years). A total of 249 students had attended the above course of which 223 students answered two written optional written questionnaires each (response rate: 89.6%). 83 of the students were males (37.2%) and 140 were females (62.8%). The students had been informed in advance about the research nature of the study, their voluntary participation and the fact that no effect whatsoever would carry their participation or non-participation to their overall evaluation and grading of the course.

TABLE 1. Data about the sample

	Min	Max	Mean	SD	N	%
A1. Age	19.0	23.0	20.9	0.9		
A2 Gender						
Female					140	62.8
Male					83	37.2
TOTAL					223	100

Table 2 gives data about the extent of reading food labels by the respondents. About 72% read labels often or anways.

TABLE 2. Extent of reading food labels by the respondents

	N	%
B1. Do you read food labels?		
Never	4	1.8
Seldom	59	26.5
Often	123	55.2
Always	37	16.6
TOTAL	223	100

Table 3 demonstrates students' concern with healthy diet , while Table 4 the extent of their Knowledge and application in their life of the Mediterranean food pyramid.

TABLE 3. Students' concern with healthy diet

	N	%
B4. Are you concerned with healthy diet ?		
No	10	4.5
Yes, sometimes	100	44.8
Yes, always	113	50.7
TOTAL	223	100
B5. To what extent do you apply healthy diet in your life?		
Never	6	2.7
Very little	65	29.1
To a satisfactory extent	142	63.7
Fully	10	4.5
TOTAL	223	100

TABLE 4. Extent of students' knolwdge and application of the Mediterranean food pyramid.

	N	%
B8. Are you aware of the Mediterranean food pyramid?		
No	48	21.5
Yes	175	78.5
TOTAL	223	100
B10. If you are aware of the Mediterranean food pyramid, to what extent do you apply it?		
Not at all	40	17.9
Very little	28	12.6
Little	71	31.8
To a satisfactory extent	82	36.8
Fully	2	0.9
TOTAL	223	100

Examples of industrial foods

Students were given with lists of ingredients of a number of prepared/ industrial foods, such as chef''s salad with chicken and noodles, salted crispy biscuits with vegetables, fresh semi-skimmed pasteurized milk, dry milk powder with vegetable fat, milk chocolate with almonds, and croissant with a cocoa filling. Table 5 gives the questions about fresh milk and about dry milk powder with vegetable fat.

TABLE 5. Questions about fresh milk and about dry milk powder
C1. State any constituents of fresh milk that you are aware of.
C2. Do you feel familiar with the ingredients of milk powder from the chemical point of view?
C3. What is hydrogenated fat and which is the purpose for using it as an ingredient?
C4. Refer to any added ingredients that are not part of fresh milk. Which is their function?
C5. Which is your general impression from reading the ingredients of the given powder milk?

Regarding students impression about the ingredients of the given dry milk powder, the following are representative responses:

- "(The label is) informative but not the best product. Better is fresh milk".
- "It is an industrial product – it doesn't impress me, I should prefer fresh milk"
- "It has many E's – it is very unhealthy"
- "It has undergone a lot of treatment, so I don't prefer it"
- "It attempts to imitate the fresh product, but it doesn't have a special nutritional value – it makes no good impression on me"

Relevant literature

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