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Hummus - Traditional Halal Dish from the Middle East

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ABSTRACT

Hummus is a vegetable protein-lipid dish with a high satiety index, prepared from tahini and chickpeas. It was eaten by the forefather of all religions, Abraham or, among Muslims, Ibrahim a.s. Hummus is popular in most Arab countries and in Israel, and is gaining more and more followers in Western countries as well. The fundamental terms used to comment on the halal status of a product are halal (permitted), haram (forbidden), and meshbuh (questionable).

Aim of the paper: The purpose of this paper is to provide a brief nutritional overview of hummus, as well as an outline of the requirements for the commercial production of halal hummus.

Materials and methods: This paper compared the nutritional composition and ingredient list of six commercially available hummus products. A haram analysis was conducted based on the halal norm HRN BAS 1049:2010.

Results and discussion: The caloric value of hummus ranges from 231 to 295 kcal, while the total fat content in these products ranges from 19 to 24 g, saturated fat from 1.5 to 3 g, carbohydrates from 6.7 to 11 g, sugars from 0.2 to 2.2 g, fiber from 3 to 7.5 g, protein from 3.9 to 8.6 g, and salt from 0.5 to 1.63 g. Although calorie counting is the traditional approach to weight management, using nutrient density standards can help individuals have a higher quality diet. Compared to other spreads and dips, hummus has a higher Naturally Nutrient Rich (NNR) rating.

Based on HRN BAS 1049:2010, humus is considered low risk for haram since its ingredients are mostly of plant origin, although some additives used in commercial production may be synthetic. Haram analysis is conducted to identify haram critical control points (*HrCCP*) and establish preventive measures to avoid haram contamination of the final product.

Conclusion: Hummus is a nutritionally balanced dish that belongs to the low-risk category in terms of halal. However, adequate supervision of *HrCCP* is necessary to ensure the halal status of the product.

1. Introduction

1.1. Hummus

Traditional hummus is a dip or spread made from cooked, pureed chickpeas mixed with

tahini, olive oil, lemon juice, and spices. There are a variety of other forms of hummus on the market or bean-based dips that are called hummus but do not follow the traditional hummus recipe- each containing unique

ingredients which may or may not contribute to nutrient intakes and/or have benefits beyond basic nutrition (Wallace et al, 2016). Main ingredients are chickpeas and sesame.

The chickpea (*Cicer arietinum* L.), commonly known as the garbanzo bean, is one of the earliest cultivated legumes, with 9,500-year-old remains found in the Middle East (Bewley et al., 2006). Domesticated chickpeas have been found at preceramic Neolithic sites in Turkey and the Levant, particularly at Çayönü, Hacilar and Tell es-Sultan (Jericho). Chickpeas then spread to the Mediterranean around 6000 BC, and to India around 3000 BC (Perman et al., 2005). There are two main varieties of chickpea: the Kabuli type with light-coloured seeds and the dark Desi type with smaller seeds. India is the world's leading producer of chickpea (Wallace et al, 2016). Chickpea is used as an important ingredient in Mediterranean and Middle Eastern cuisine, where it is mainly found in hummus. It also plays an important role in Indian cuisine and is used in salads, soups and stews as well as curries.

Chickpea is a good source of carbohydrates and protein, the quality of protein being better than that of other legumes, and although it contains small amounts of fats, it is rich in nutritionally important unsaturated fatty acids such as linoleic and oleic acids. Ca, Mg, P and especially K are also present in chickpea seeds. Chickpeas are a good source of important vitamins such as riboflavin, niacin, thiamin, folic acid, and the vitamin A. Chickpeas have several potential health benefits and, in combination with other legumes and grains, could have beneficial effects on some major human diseases such as cardiovascular disease, type 2 diabetes, digestive disorders, and some cancers (Jukanti i sur., 2012)

Sesame (*Sesamum indicum* L.), a member of the Pedaliaceae family, is an erect annual herb commonly known as sesamum, benniseed, or simsim. It is one of the oldest and most traditional oilseed crops, valued for its high-quality oil. According to archaeological evidence, sesame cultivation descended from wild populations native to South Asia, and its cultivation was established in South Asia from the time of the Harappan civilization, spreading westward to Mesopotamia before 2000 BC (Fuller, 2003). Dried whole sesame seeds contain 573 kilocalories and are composed of 5% water, 23% carbohydrate (including 12% fibre), 50% fat, and 18% protein (USDA, 2018).

The major fatty acids are oleic acid (35 to 50%), linoleic acid (35 to 50%), palmitic acid (7 to 12%), stearic acid (3 to 6%). Due to the high content of linoleic acid, sesame oil is a valuable nutritional product (Egbekun and Ehieze, 1997) (Guerra et al. 1984). Tahini, also known as tahina, is a spice commonly used in Middle Eastern cuisine. It is made by grinding and frying peeled sesame seeds, giving it a similar chemical composition and nutritional properties. Tahini can be served alone as a sauce, or used as a main ingredient in dishes like hummus and halva. It is widely used in the Levant, eastern Mediterranean, southern Caucasus, and parts of northern Africa (WHO, 2008).

1.2. Halal

The concept of halal can be interpreted in various ways, including linguistic, religious, cultural, health-related, and other contexts. The term itself is of Arabic origin, and can be translated as "allowed" or "permissible". In the context of Islam, it refers to everything that is permitted by faith, and encompasses the entire lifestyle of Muslims. Haram is a term that denotes that which is contrary to halal, i.e. that which is forbidden. The rules related to halal food and slaughter are based on the Holy Quran, Sunnah, Hadith, and the opinions of religious scholars (Dugonjić, 2019). Individuals who follow a halal diet look for the halal mark on products, indicating that it has been certified by a halal certification body. This confirms that every ingredient in the product is halal (Dugonjić, 2019). According to a report by the State of the Global Islamic Economy, the global halal market was worth approximately \$2.4 trillion in 2020., with the halal food market accounting for the majority of its value. However, in the European Union, not all food products are halal certified, so members of the Islamic faith must determine the status of a product based on its ingredients.

This paper aims to provide an a brief nutritional overview of hummus, as well as overview of the requirements for commercial production of halal hummus based on norm HRN BAS 1049:2010.

2. Materials and methods

This study was conducted using six samples of hummus collected from retail chains in the Republic of Croatia in April 2023. The nutritional declaration (Table 1) and list of ingredients (Table 2) were analyzed. To

determine the halal status of the hummus, the halal norm HRN BAS 1049:2010 was followed. This standard, which represents the second edition of the original Halal standard BAS 1049:2007 issued by the Institute for Standardization of Bosnia and Herzegovina, was adopted by the Croatian Standards Institute in 2010. It is one of the first halal standards in the world approved by the Islamic community and officially registered in the Institute for Standardization. This means that a unique method of halal certification has been established in the countries of the region, including Croatia, Bosnia and Herzegovina, Serbia, Montenegro, and Macedonia. The requirements of the halal standard are applied to the entire production process, which is defined by the flow chart during the establishment of the Hazard Analysis and Critical Control Points (HACCP) system (Fig.1). To monitor and ensure the integrity of the production process, haram critical control points (HrCCP) and the analysis of haram critical control points (HrACCP) have been defined. The aim of the analysis is to

prevent contamination with haram during production of halal hummus. The requirements of the norm, including actions for the prevention and correction of non-compliance, are defined by documented procedures and records of their implementation. This ensures accountability and provides guidelines for planning and conducting audits (Ljevaković and Jašić, 2010; HRN BAS 1049:2010). The application of halal standards is contingent upon the certification of the company by a halal certification body.

3. Results and discussion

3.1. Nutritional profile of industrial hummus

Table 1 shows caloric and nutritional values for 6 different brands of hummus collected on the market of the Republic of Croatia, expressed per 100 grams of product.

Table 1. Comparison of nutritional characteristics of different commercially available hummus (*expressed per 100g of product)

Product brand	Calories (kcal)*	Fat (g)*	Saturated Fat (g)*	Carbohydrates (g)*	Sugars (g)*	Fiber (g)*	Protein (g)*	Salt (g)*	Halal certified
Ribella	231	19	2	6.7	0.7	5.4	5.5	1	No
Sana	295	24	3.5	13	0.2	NA	6	0.5	Yes
dmBio	263	23	2.8	9.2	0.6	3	3.9	1.1	No
Nutrigold	258	20	1.5	10	0.5	7.5	6.5	1.1	No
Chef Select	272	20.8	1.9	12	2.2	5.2	6.7	1.63	No
Spar veggie	293	23	2.8	11	0.9	4	8.6	1.3	No

Table 1 shows that the caloric value of hummus ranges from 231 to 295 kcal, while total fat in the mentioned products ranges from 19 to 24g, saturated fat from 1.5 to 3g, carbohydrates from 6.7 to 11g, sugar from 0.2 to 2.2g, fiber from 3 to 7.5g, protein from 3.9 to 8.6g, and salt from 0.5 to 1.63g. The proportion of individual nutrients varies depending on the ingredients used in each brand of hummus, which are listed in Table 2. Nevertheless, hummus can be considered a balanced meal as it contains all three macronutrients.

Although macronutrient data is not presented in Table 1, it is worth noting that hummus has been identified as a good source of several essential micronutrients. According to Papanikolaou and Fulgoni (2008), hummus is rich in vitamin A, vitamin E, vitamin C, folate, iron, and magnesium. The Naturally Nutrient Rich (NNR) score is a universal nutrient-to-calorie ratio calculated as the average of the percent daily value (%DV) for 16 nutrients: $NNR = \sum \%DV_{2000Kcal} / 16$. Using data from the U.S. Department of Agriculture National Nutrient Database, nutritional profiles and NNR scores

were calculated for common dips and spreads, revealing that traditional hummus has the highest NNR score (98.42) compared to *Bean Dip* (82.36), *Ranch Dressing* (23.02), *Salsa* (89.29), *Sour Cream* (42.95), *Cream Cheese* (41.86), and *Peanut Butter* (67.94). Choosing traditional hummus as a dip or spread can help maximize the nutrient-to-calorie ratio due to its unique blend of health-promoting ingredients (Wallace et al., 2016).

Although research on the topic is still emerging, several studies have highlighted the potential health benefits of consuming hummus or chickpeas. Specifically, studies have found evidence linking these foods to improvements in weight control, glucose and insulin response, cardiovascular disease, cancer, and gastrointestinal health (Wallace et al., 2016).

In order to adequately comment on the halal status, we must consider each of the ingredients of hummus. First of all, it is necessary to take

into account the origin of the ingredients, but also the possibility of contamination with haram of individual ingredients or the finished product during all production steps.

Through the mentioned 6 types of commercially available hummus in Table 2, a total of 18 ingredients appear in the composition: chickpeas, rapeseed oil, SOY oil, sunflower oil, olive oil, SESAME pasta, starch (corn/modified/maltodextrin) alcohol vinger, lemon juice spices and spice extracts (salt, garlic, cumin, paprika, coriander, chili, white pepper, herbs) acidity regulator (citric acid, sodium hydrogen carbonate, sodium acetat, octenoic acid, lactic acid 3B), sugar 0.45%, preservative (potassium sorbate). All six samples of hummus that were analyzed contained two essential ingredients - chickpeas and tahini. These ingredients are used both in traditional and industrial production of hummus.

Table 2. Comparison of hummus ingredients of different commercially available hummus

Product brand	Ingredients
Ribella	Boiled chickpeas 76%, rapeseed oil, SESAME pasta, spices and spice extracts, table salt, acidity regulator (citric acid, sodium hydrogen carbonate), sugar 0.45%, preservative (potassium sorbate)
Sana	Boiled chickpeas 48%, SOY oil, SESAME pasta 16%, water, corn starch, salt, garlic, acidity regulators (citric acid, octenoic acid), preservative (potassium sorbate)
dmBio	Water, 34% chickpeas*, sunflower oil*, 3% garlic*, olive oil* (extra virgin), 2% sesame*, sea salt, cumin*, lemon juice concentrate*, cornstarch*, coriander*, paprika*; *from organic farming
Nutrigold	Cooked chickpeas* 48%, sunflower oil*, water, tahini* 2% (sesame pasta), extra virgin olive oil*, lemon juice* (concentrate), salt, garlic*, white pepper*, cumin*; *from certified organic cultivation
Chef Select	55% chickpeas, rapeseed oil, water, 12% sesame, alcohol vinegar, sugar, table salt, modified starch, starch, lemon juice concentrate, garlic, spices, chili, herbs, acidity regulator (sodium acetates), thickener (guar gum))
Spar veggie	53% chickpeas, water, sesame, rapeseed oil, olive oil, salt, lemon juice powder, acidity regulator: citric acid, lactic acid 3B, preservative: potassium sorbate, maltodextrin, natural lemon flavor, garlic, spice

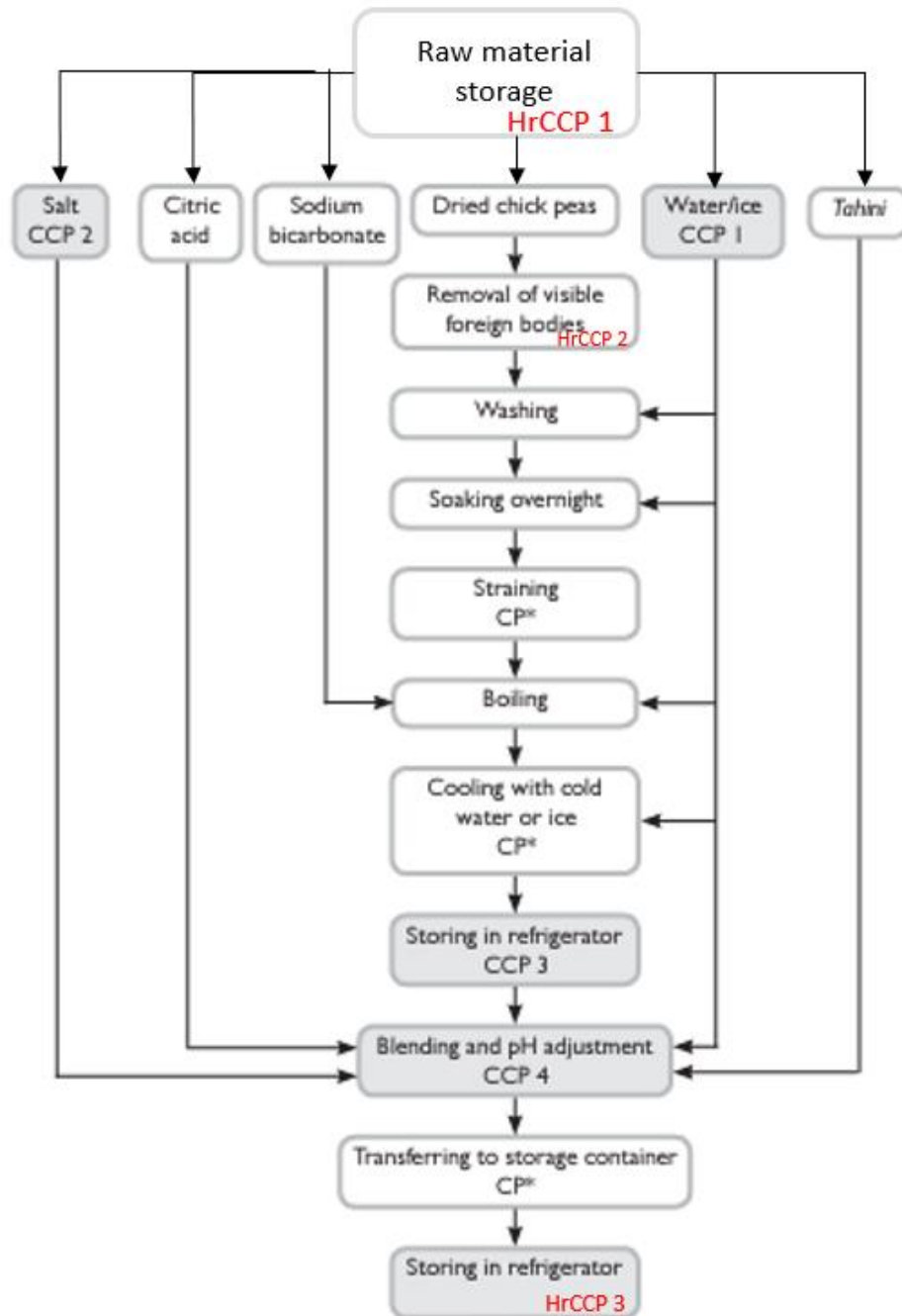
According to the halal standard HRN BAS 1049:2010, all ingredients listed in the samples can be considered halal, as they are mostly of plant or synthetic origin and do not come from prohibited animals. However, if any of the ingredients have a *GMO* origin, they are considered meshbuh or suspicious, which is interpreted by Islamic jurists as something that is tried to

be avoided as much as possible. Therefore, until proven otherwise, meshbuh ingredients are treated as haram or forbidden (Dugonjić, 2019).

It is important to ensure that during the production process, there is no contact with haram in order for the final product to be halal. This requires the producer to carry out

a haram analysis, which will be described in detail in the next chapter.

3.2. The analysis of haram



Picture 1. Illustrates the hummus production process with the HrCCP points clearly identified.
Note: This flow chart is presented as an example and may not represent the exact process used by all hummus producers.

To ensure that products are free from haram elements, an analysis is conducted by examining the production process flow chart to identify critical control points (referred to as HrCCP) where haram elements may be present. For each

HrCCP identified, a method of measurement and control is determined, and a corrective action plan is developed in case the point is not adequately monitored, and there is a possibility of the final product becoming haram. The

analysis of hygiene and health safety, along with good manufacturing practices, is a necessary prerequisite for identifying *HrCCPs*. When analyzing *HrACCP* for haram control, all processes involved in producing halal products must be considered (HRN BAS 1049:2010) (Uršulin-Trstenjak et al., 2017).

It is important to understand that the *CCPs* identified in a *HACCP* plan may differ from the *HrCCPs*. While a safe and healthy product is a prerequisite for halal certification, halal standards represent an elevated level of quality for consumers seeking halal products (Ljevaković and Jašić, 2010).

Table 3. Haram analysis according to HRN BAS 1049:2010

HrCCP	HAZARD	REQUEST OF NORM HRN BAS 1049:2010	MONITORING		CORRECTIVE ACTION
			TEST	FREQUENCY	
<i>HrCCP</i> 1 - Raw material storage	Raw material is not halal	5.9, 5.10, 5.11, 5.12, 5.14, 6	Checking of Halal certificate for each raw material, laboratory analyses on haram presence (Pork protein, alcohol, <i>GMO</i>), Visual Examination-storage in a separate, special storage area with a visible halal label	ongoing basis	in case of haram, a procedure non-conformity management is used
<i>HrCCP</i> 2 - Removal of visible foreign bodies	Physical and Biological: Foreign matter; presence of haram insects	6,7	Visual Examination	with every production	in case of haram, a procedure non-conformity management is used
<i>HrCCP</i> 3 - Storing in refrigerator	the halal product was mistakenly replaced with a halal product	5.10, 5.14	Visual Examination-storage in a separate, special storage area with a visible halal label	ongoing basis	in case of haram, a procedure non-conformity management is used

Table 3. provides an analysis of the *HrCCP* for hummus production. The analysis identifies three critical control points: *HrCCP* 1 - Raw Material Storage, *HrCCP* 2 - Removal of Visible Foreign Bodies, and *HrCCP* 3 - Storing in the Refrigerator.

To ensure the production of halal products, the entire production process requires the physical or spatial separation of halal and haram raw materials and products, as defined by the HRN BAS 1049:2010 standard. Before using any raw materials, the supplier must provide a halal certificate from a credible, accredited certification body or a statement on the halal status of the raw material with the manufacturer's specification if it is a low-risk raw material according to halal standard. If needed, a laboratory analysis is required for the presence of haram ingredients. All accepted raw materials should be stored in a dedicated storage area with a visible halal label.

During production, weighing, mixing, and combining halal raw materials should be done

separately from haram raw materials using separate machines and utensils. If there is a need to use the same utensils and industrial dishes, it is necessary to separate the production of halal and haram and thoroughly wash the equipment before switching to halal production. Verification of the cleaning process can be done through methods such as detecting chemiluminescence (a luminometer evaluates surface cleanliness by measuring the chemical marker adenosine triphosphate (*ATP*), a compound found in all types of plant, animal, and microbial cells) or using rapid tests for the detection of haram.

The removal of visible foreign bodies is essential for halal production, as certain insects are prohibited according to the HRN BAS 1049:2010 standard. Insects are living organisms that can potentially cause harm to humans if consumed in large quantities or if they carry harmful microorganisms. Their presence can also indicate poor sanitation practices or inadequate storage conditions, which can lead to

the growth of harmful bacteria and other microorganisms in the food.

Finally, halal finished products should be stored in a dedicated space marked with the halal mark or the inscription halal products. If there is a risk of cross-contamination with non-halal finished products, it is necessary to physically separate them.

If contamination is detected at any of the identified *HACCP* points, the non-conformance management procedure should be followed (HRN BAS 1049:2010; Codex Alimentarius Commission, 2/2001).

4. Conclusion

While calorie counting has been a traditional strategy for weight control, the application of the nutrient density standard helps consumers make informed decisions that maximize the nutritional value of each calorie towards meeting daily intake recommendations. As a traditional Middle Eastern dish, hummus is becoming increasingly popular in Western kitchens due to its high Naturally Nutrient Rich score (*NNR*) compared to most other spreads and sauces. Making hummus at home using a traditional recipe is recommended, as it allows consumers to ensure the quality of the ingredients used. Further research is needed to draw final conclusions about the health benefits of hummus.

According to HRN BAS 1049:2010, hummus falls into the low-risk category for haram, primarily because its ingredients are mostly of plant origin, although some additives used in commercial production may be of synthetic origin. The application of halal standards is contingent upon the certification of the company by a halal certification body. Haram analysis is conducted to identify *HrCCPs* and establish preventive measures aimed at preventing contamination of the final product with haram. By adequately supervising, hummus producers can ensure the production of high-quality and halal-compliant products.

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Humus - tradicionalno halal jelo bliskog istoka

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Pregledni rad

PODACI O RADU SAŽETAK

Ključne riječi:

humus, halal status, halal proizvodnja, HrCCP, zdravstvene prednosti

Uvod: Humus je biljno proteinsko-lipidno jelo, sa visokim indeksom sitosti. Glavni sastojci su slanuta i susam. Konzumirao ga je praotac svih vjera, Abraham ili, među muslimanima, Ibrahim a.s.. Humus je popularan u većini arapskih zemalja i Izraelu, a sve je popularniji u zapadnim zemljama. Osnovni pojmovi koji se koriste u komentarisanoj halal statusa proizvoda su halal (dozvoljeno), haram (zabranjeno) i mešbuh (upitno).

Cilj rada: Cilj rada je dati kratak nutritivni pregled humusa, kao i pregled zahtjeva za komercijalnu proizvodnju halal humusa.

Materijali i metode: U radu je upoređen nutritivni sastav kao i spisak sastojaka ukupno 6 komercijalno dostupnih humusa. Haram analiza je izvršena na osnovu halal norme HRN BAS 1049:2010.

Rezultati i diskusija: Kalorijska vrijednost humusa kreće se od 231 do 295 kcal, dok se ukupne masti u navedenim proizvodima kreću od 19 do 24 g, zasićene masti od 1,5 do 3 g, ugljikohidrati od 6,7 do 11 g, šećeri od 0,2 do 2,2 g, vlakna od 3 do 7,5 g, proteini od 3,9 do 8,6 g i soli od 0,5 do 1,63 g. Iako je brojanje kalorija tradicionalni pristup upravljanju težinom, korištenje standarda gustine nutrijenata može pomoći pojedincima da imaju kvalitetniju ishranu. Humus ima višu ocjenu na skali hrane prirodno bogate nutrijentima (NNR) u odnosu na druge namaze i umake.

Na temelju HRN BAS 1049:2010, humus se smatra niskim rizikom za haram jer su njegovi sastojci uglavnom biljnog porijekla, iako neki aditivi koji se koriste u komercijalnoj proizvodnji mogu biti sintetički. Haram analiza se vrši radi identifikacije haram kritičnih kontrolnih tačaka (HrCCP) i uspostavljanja preventivnih mjera za izbjegavanje haram kontaminacije konačnog proizvoda.

Zaključak: Humus je nutritivno uravnoteženo jelo. Iako humus spada u kategoriju niskog rizika u pogledu halala, potrebno je provesti adekvatan nadzor nad HrCCP-a.