

Short communication

A Slovenian Water-driven Device for Hulling Buckwheat “Stope” is in the Process of Being Registered as Cultural Heritage.

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ABSTRACT

A traditional Slovenian water-powered device for hulling buckwheat grain and producing groats is described. According to the traditional Slovenian process mentioned in literature as early as the year 1689, buckwheat grains were quickly boiled in water, drained, and partially dried. This way, the dry husks became brittle, while the inner part of the grains remained firm and elastic enough to not get damaged during the process. In other parts of Slovenian territory, the grain-hulling device was powered by foot (just like in many other places around the world) or with a hand pestle, while in southeastern Slovenia they used a water-driven device. One of the few standalone devices for hulling buckwheat is in Gorenje Vrhpolje near Šentjernej. Because of the significance of this unique device, a process for monument protection has been initiated with the relevant office at the Ministry of Culture of the Republic of Slovenia.

INTRODUCTION

In Slovenia, there is a long tradition of producing buckwheat groats (hulled buckwheat), which was already described by Valvasor (1689). The process has basically remained the same over time. The buckwheat grains are boiled in water until the insides swell and the hulls crack, then the grains are taken out of the water and partly dried in the shadow place. Making buckwheat groats used to be an important source of income for Slovenian farmers households (Pšajd, 2024; Kozar – Mukič, 2024). Even now, buckwheat and buckwheat groats have a sense of food that brings back memories of the ‘good old days’ (Vombergar and Gostenčnik, 2001).

In parts of Slovenia where there are not many suitable water streams, especially in northeastern Slovenia (Podravje and Pomurje), foot-operated threshers are used. This is described and illustrated with pictures in the articles by Pšajd (2024) and Kozar – Mukič (2024). On one side, in the middle of the supported beam, the farmer steps on the beam and then lets it drop so that on the other side, the tip freely falls into the prepared cooked and partially dried grain. The device got its Slovenian name ‘stope’ from this alternating stepping. In western Slovenia (Primorska, near Šempeter pri Gorici), we found a simple hand-operated stope: the farmer placed the prepared grain into a hole in a large stone and pounded it with a wooden mallet to husk the grain. According to the user, the stone is supposedly from the Roman era.

Buckwheat grains are an important source of antioxidants and other nutritionally important metabolites (Kreft et al., 2008; Vombergar and Luthar, 2018; Vombergar et al., 2025). After husking, the nutritionally important substances remain in the groat, as they are mostly located in the embryo, endosperm, and aleurone layer, not in the husk (Kreft et al., 2017; 2023; Vombergar et al., 2020).

The husks were not thrown away after hulling; in Europe, they were once used as extra insulation for houses, and in Italy (Teglio), even for storing dried sausages. The husks are also useful for pillows since they’re comfortable and vent heat and moisture well (Vombergar et al., 2024). They are less suitable for fertilizing fields, probably because soil microorganisms temporarily lock up the minerals, which can then be released only in the following years after the decomposition of husk, and become available to crops again.

DEVICE DESCRIPTION

The water-powered device for hulling buckwheat is located at the Cerkovnik farm. Owner Andrej Cerkovnik maintains it in its original condition. The water wheel of the device is at risk of degradation due to alternating exposure to water and air. A description of original state of this device was published with a photograph in 2003 in an international publication in South Korea (Kreft 2003). The owner thoroughly restored the water wheel in the summer of 2013 so that it would be ready for visits from participants of the 12th International Buckwheat Research Association (IBRA) symposium. The inside of the device, housed in a wooden shed set on stone foundations, has remained unchanged, original. It consists of a horizontal beam with big holes, into which pre-cooked and partially dried buckwheat grain (about one kilogram or more into each hole) is poured.

Other essential components are vertically mounted beams, each with an iron tip at the bottom. The third



Figure 1. Stope in Gorenje Vrhpolje during the visit of participants of the 12th IBRA conference in 2013.



Figure 2. Water wheel on “mlinščica” water stream to run stope.

component of the inner part of the device is a spindle with moving levers. When the spindle turns, the levers alternately lift the vertical beams and let them drop so that they freely fall into a groove in the lower beam for threshing. The lifting and dropping of the vertical beam is repeated as needed, sometimes up to about fifty or more times. The processed grain is taken out of the device, and by winnowing in the wind, the husks are removed. Some grains remain unhulled. On long winter evenings, families used to pick out the unhulled grains from the mixture.

In the Dolenjska region, there were several water-powered stope (stamping mills). Some of them were and still are preserved as parts of regular stone mill sets. The Cerkovnik stamp mills on the Kobila stream, however, are unique, as far as is known, the only preserved standalone water-powered stamp mills, with a millwheel that is powered from a water stream (mlinščica) from below. As such a landmark, stope were recognized on the initiative of Fagopyrum Slovenian Association for the buckwheat promotion by the Department for the Protec-



Figure 3. Inside view to stope.



Figure 4. Inside view to stope under action.

tion of Cultural Heritage in Novo Mesto, which initiated the process to protect these stope as a unique technical heritage and a cultural monument of special importance at the Ministry of Culture of Slovenia.

There used to be about 18 mills or stope on the Kobila stream (Anton Rangus, personal communication), but so far only Cerkovnik's stope in the village of Gorenje Vrhpolje and his cousin Anton Rangus' mill in the village of Dolenje Vrhpolje remain. Rangus is still involved in husking common and Tartary buckwheat groats, but now with modern equipment.

CONCLUSION

Following the information from miller Anton Rangus and the initiative of FAGOPYRUM – Society for buckwheat promotion, Dušan Štepec, M.Sc. a conservator-advisor and head of the Novo mesto regional unit at the Slovenian Authority for the Protection of Cultural Heritage, Cultural Heritage Service, carried out

an assessment of the stope and determined that it is an extraordinary and valuable technical structure. Based on this, he shared the information with the planners of the Kobilja stream regulation and submitted a proposal to register the Cerkovnik stope in the register of immovable cultural heritage to the Ministry of Culture of Slovenia.

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IZVLEČEK

Slovenske vodno gnane stope za luščenje ajde v postopku registracije kot kulturna dediščina.

V delih Slovenije, kjer ni mnogo primernih potokov, to je zlasti v severnovzhodni Sloveniji (Podravje in Pomurje) uporabljajo stope na nožni pogon. To je opisano in ilustrirano s slikami v člankih Pšajd (2024) in Kozar – Mukič (2024). Na eni strani v sredini podloženega trama kmet stopa na tram in nato spusti, da na drugi strani s konico prosto pade v pripravljeno kuhano in delno posušeno zrnje. Od tega izmeničnega stopanja je naprava dobila slovensko ime »stope«. V zahodni Sloveniji (Primorska, v bližini Šempetra pri Gorici) smo našli preproste stope na ročni pogon: kmet je namestil pripravljeno zrnje v vdolbino v velikem kamnu in tolkel z lesenim batom, da se je zrnje oluščilo. Po navedbi uporabnika naj bi bil kamen domnevno še iz časa Rimljanov.

Ajdova zrna so pomemben vir antioksidantov in drugih v prehrani pomembnih metabolitov (Kreft et al., 2008; Vombergar and Luthar, 2018, Vombergar et al., 2025). Po luščenju ostanejo prehransko pomembne snovi v kaši, saj so večinoma locirane v embriju, endospermu in alevrnskem sloju in ne v luščini (Kreft et al., 2017; 2023; Vombergar et al., 2020).

Luščin se po luščenju ni zavrglo, v Evropi se jih je nekoč uporabljalo za dodatno izolacijo hiš, v Italiji (Teglio) pa celo za shranjevanje posušenih salam. Luščine so uporabne tudi za vzglavnike, saj so prijetni in lepo odvajajo toploto in vlago (Vombergar et al., 2024). Za gnojenje njiv so manj primerne, verjetno ker mikroorganizmi tal začasno vežejo mineralne snovi, ki pa se lahko sprostijo naslednja leta in postanejo ponovno dostopne posevkom.

Vodno gnana naprava za luščenje ajde je locirana na domačiji Cerkovnik. Gospodar Andrej Cerkovnik jo vzdržuje v prvotnem stanju. Vodno kolo naprave je ogroženo s preperevanjem zaradi izmenične izpostavljenosti vodi in zraku. Opis prvotnega stanja teh stop je bil s fotografijo objavljen leta 2003 v mednarodni publikaciji v Južni Koreji (Kreft 2003). Lastnik je vodno kolo stop temeljito obnovil poleti leta 2013, da je bilo pripravljeno za obiske udeležencev 12. simpozija Mednarodnega združenja za raziskave ajde (IBRA). Notranji del naprave je v leseni hiški, postavljeni na kamnite temelje in je ostal nespremenjen, originalen. Sestavljen je iz vodoravnega trama z vdolbinami, v katere se nasuje prekuhano in delno posušeno zrnje ajde. Drugi bistveni sestavni deli so vertikalno nameščeni tramovi, vsak ima železno konico na spodnjem delu. Tretji sestavni del notranjega dela naprave je vreteno z odmičnimi ročicami. Med vrtenjem vretena ročice izmenjajo dvigajo vertikalne tramove in jih spuščajo, da prosto padajo v vdolbino v spodnjem tramu, na zrnje za luščenje. Dviganje in padanje vertikalnega trama se ponovi, dokler je potrebno, navadno je okoli petdesetkrat. Obdelano zrnje se vzame iz naprave in s preprihavanjem na vetru se odstrani luščine. Nekaj zrn ostane neoluščenih. V dolgih zimskih večerih je nekdanja družina ob mizi odbirala neoluščena zrna iz kaše.

Na Dolenjskem je bilo več stop na vodni pogon. Nekatere so bile in so še ohranjene v sklopu mlinov. Opisane Cerkovnikove stope na potoku Kobilica so edinstvene, kolikor je znano so edine take ohranjene samostojne stope na vodni pogon, z mlinščico, ki poganja vodno kolo od spodaj. Kot tako znamenitost jih je na pobudo Fagopyrum – društva za promocijo ajde prepoznal tudi območni zavod za varstvo kulturne dediščine v Novem mestu, ki je sprožil postopek za zaščito teh stop kot edinstveno tehnično dediščino in kulturni spomenik posebnega pomena.

Na potoku Kobilica naj bi bilo nekoč okoli 18 mlinov ali stop (Anton Rangus, osebna informacija), do sedaj so ostale samo Cerkovnikove stope v vasi Gorenje Vrhpolje in mlin njegovega bratranca Antona Rangusa v vasi Dolenje Vrhpolje. Rangus se še vedno ukvarja z luščenjem navadne in tatarske ajdove kaše, vendar s sodobnimi napravami.

Na opozorilo mlinarja Antona Rangusa in na pobudo FAGOPYRUM – društva za promocijo ajde je pri Zavodu za varstvo kulturne dediščine Slovenije, Služba za kulturno dediščino, *konservatorski svetnik in vodja območne enote Novo mesto mag. Dušan Štepec izvedel valorizacijo stop in ugotovil* da gre za izjemen in dragocen tehniški objekt. Na tej osnovi je posredoval informacije načrtovalcem regulacije potoka Kobilica in sprožil predlog za vpis Cerkovnikovih stop v register nepremične kulturne dediščine pri Ministrstvu za kulturo Republike Slovenije.

Zahvala: Zahvaljujemo se konservatorskemu svetniku mag. Dušanu Štepcu za razumevanje pomena Cerkovnikovih stop in za predlog za vpis stop v register nepremične kulturne dediščine pri Ministrstvu za kulturo Republike Slovenije.