

Protein Identification From Sweat Exudate Collected With A Strigil In A Sauna Bath

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BACKGROUND The etymology of “bath” from the Greek means “To banish pain”[1]. Ancient Olympians scraped their skin with strigils, this process rendered a substance from the skin called gloios and used as a medicine[2]. Compared to current body scraping processes, Greek strigils have archaeological primacy, not China nor Egypt[3]. The exact process for extracting the gloios from the body and preparing it for topical use is not yet documented [4]. Water and sauna baths played a likely role.

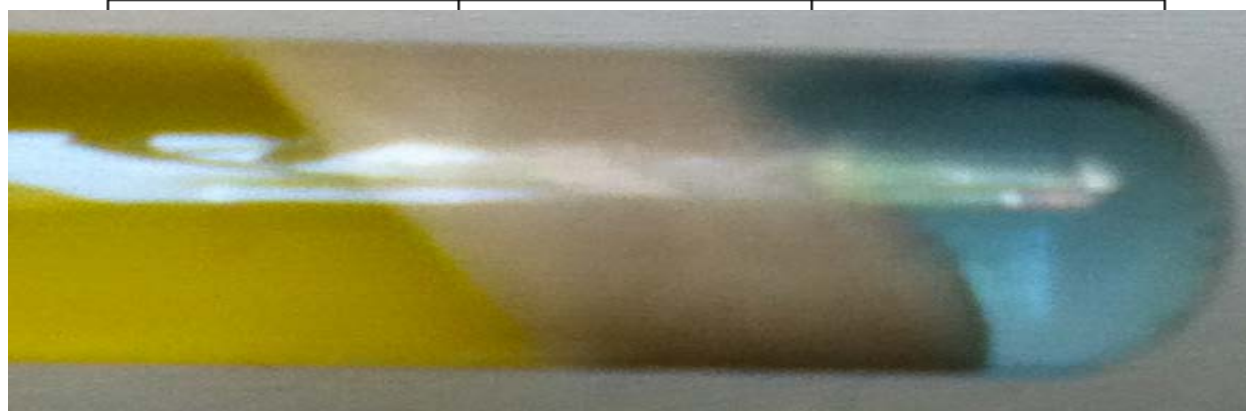
METHODS Four subjects with informed consent showered with soap, rubbed down with apple cider vinegar, rinsed with water. “Reference” samples, subjects scraped their skin with a copper strigil collecting exudate. “Study” samples, subjects anointed with olive oil as indicated[3] then scraped their skin with a copper strigil collecting exudate. All samples were collected in a Far Infra Red(FIR) sauna temperatures ranged from 130-150 degrees Fahrenheit (45-65 C). Eight samples were collected in sterile containers labeled and refrigerated. Extractions from aqueous(right) and interphase(center) layers(Figure) were separated by electrophoresis (SDS-PAGE). Sample H2(reference) and H2.2(study) were cut and in-gel digested with trypsin. The tryptic peptides were resuspended in aqueous acetonitrile and formic acid and analyzed by LC-MS/MS to determine specific proteins. The spectral package MS/MS was utilized to interrogate the Swissprot-Uniprot protein database using search engine Spectrum Mill Proteomics Workbench (SMPW) (Parameters and validations available).

CONCLUSION 38 proteins were identified from sweat(Table).The strategy for selecting and testing specific regions of differential patterns in the gels has revealed the presence of common proteins and differential proteins in different samples from the same individual H2. This Demonstrates that the applied treatment alters the electrophoretic band pattern and alters the protein composition of the exudate. As a consequence of the applied treatment, concrete proteins are affected by their presence or abundance in the exudate. Was this beneficial beyond just “being clean”. In *Hygiene*, Galen describes anointing and scarping sweat in the baths, quoting Hippocrates that such men that sweat copiously are healthier[5]. Do strigils change surface tension and facilitate the excretion of substances from the skin? Further testing will give us more insight into this the mother of scraping tools.

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- [1] Del Bello, Davide *Forgotten Paths: Etymology and the Allegorical Mindset* Washington, CUA Press, 2007 - Pg.75
- [2] Pliny, *Natural History*. VolVIII Book XXVIII pp.51-54, Trans, Jones W.H.S. Harvard University Press, Canbrifge 1963
- [3] Kotera-Feyer, E. *Die Strigilis*. Frankfurt am Main: Lang, Chapter I, pp.63-148
- [4] Kennell, N. "Most Necessary For The Bodies of Men." *In Altum, Seventy Five Years of Classical Studies in Newfoundland*. ed. Mark Joyal. Memorial University of Newfoundland 2001, pp.128-132
- [5] Galen Of Pergamum. "Galens Hygiene". Circa 200ce Trans. Robert Montraville Green. Springfield, Charles C Thomas, 1951. p 149-154

IN COMMON	REFERENCE	STUDY
Keratin, type I cytoskeletal 10	Keratin, type I cytoskeletal 16	Serpin B7
Keratin, type I cytoskeletal 14	Keratin, type II cytoskeletal 5	Alpha-1-antichymotrypsin (=Serpin A3)



Zinc-alpha-2-glycoprotein	Cathepsin D	Protein S100-A7 (=Psoriasin)
Prolactin-inducible protein	Apolipoprotein D	Caspase-14
Cathepsin B	Kallikrein-7 (=Serin protease 6)	
Gamma-glutamylcyclotransferase	Protein-glutamine gamma-glutamyl transferase E (= Transglutaminase E)	
Serpin B12		
Dermcidin		
Ig kappa chain C región		
Secretoglobin family 1D member 2		
Carboxypeptidase E		