

## POSSIBILITIES OF APPLICATION OF THE OIL EXTRACT FROM MOUNTAIN PINE (*PINUS MUGO*)

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### Abstract

Paper presents problematic of oil extracts from mountain pine (*Pinus Mugo L.*) as a supporting tool of classical massage. In this paper we analyse activity of this natural oil, which can influence healing effects positively and thereby it can make technique of classical massage more effective. We evaluate questionnaire, structured by ourselves, which has 11 answers, received from respondents, to the questionnaire's questions on a given theme.

**Keywords:** mountain pine oil, massage emulsion, massage

### 1 Introduction

Massage, as a therapeutic and preventive technique, has direct and indirect effects to the human body. Direct effects evoke physical and biochemical changes in the tissues and indirect effects are mediated by neural and endocrinal system. To the direct effects we can rank: increase of hyperemia, acceleration of hydroplasma absorption, exudates, haematocetes, acceleration of removal of subjects which cause tiredness, improvement of nutrition, improvement of lymph flow in the lymphatic circulation, improvement of muscular activity, increase or decrease of muscular tonus, break of adhesions in the tissues, accelerated removal of horny corneous skin layers, increase of sudoriferous secretion and normalization of turgor cutaneous. To support and increase the effectiveness of the massage we can use emulsion, which can contain various healing substances, which are, supporting by a classical massage, better absorbed to the skin, subcutis and muscles [1-4].

The result of these changes is improvement of activity of some tissues in the human body and decrease of painfulness. Stimulation of teloneurons - proprioceptors has result in production and consequential transport of biologically active subjects (amines), improvement of blood flow on the fringe, improvement of exchange of CO<sub>2</sub>, O<sub>2</sub> and nutrients in tissues, what improve nutrition and also activity of whole human body muscles. Massage helps to remove increased voltage in muscles and prevents from creation of contractures, what improves hyperemia of muscles and other tissues, and also it supports healing processes, absorption of haematocetes and exudates and prevents from connective tissues contraction during the wound healing [1, 4-7].

We put our mind to the emulsion extracted from mountain pine essential oil, which is received from mountain pine (*Pinus mugo L.*). Mountain pine essential oil is obtained by water vapor distillation from fresh needles and young twigs, which are gathered in parts (not whole tree) – approximately 2 000 tons per year. Production of mountain pine essential oil from gathering is approximately 3 liters to the 1 ton of needles. Mountain pine essential oil is then, according to the rules of German pharmacopoeia, processed to the products. It contains terpenes: alpha – pinene, beta – pinene, delta – 3 – carene. Delta – 3 – carene is natural substance which supports regenerative processes of organism. Delta – 3 – carene is absorbed

to the organism and there it works in the form suppressing the effects of inflammation, it congests and softens pain [8-9].

Positive effects of mountain pine essential oil are reduction of fungus growth and germs reproduction, rheum unlocking, hyperemia support, anti-inflammatory effect and calming down the pain.

Effect of mountain pine oil is anti-inflammatory, gently analgetic, and that is why it is appropriate for massage before and after muscle tension, it helps to avoid muscle fever. It is possible to use it for improvement of condition during the haematocoles, extumescences and wrenches, during the stretch muscle and sinew. Dwarf pine gel softens course of inflammatory processes and it decreases threshold of pain feelings, extravasations, charley horse [7, 10-11].

It supports healing, calms down the pain, oedema, it decreases probability of muscle fever, stretch muscle and sinew. It is possible to use it for improvement of condition during the haematocoles, bruises, wrenches, rheumatic jointed troubles. Gel is nongreasy, it does not glue and is absorbed very fast. Another product is mobile fluid. This is extra strong solution with warm effect dedicated to the intensive care during the muscle tension. Effective ingredients of this emulsion are extracted from comfrey leaves, mountain pine essential oil, rosemary essential oil, extract from arnica, salvia essential oil, extract from chilli pepper and panthenol [11-12].

## **2 Aims of the paper**

- What is the connection between mountain pine extracts and increased massage effects?
- If patients prefer classical massage emulsion of mountain pine oil or mobile fluid.

## **3 Material, group and methodology**

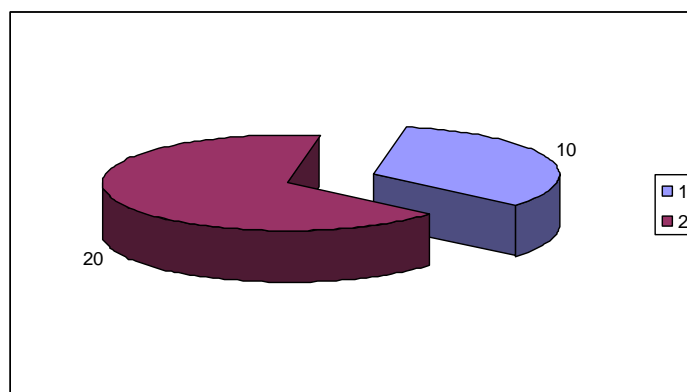
In our study the Allga San® products were used: Allga San® mountain pine oil and Allga San® mobile fluid.

Group was made by 30 massaged persons. There were 20 women and 10 men. Methodology of work was questionnaire, structured by ourselves, which had 10 questions regarding search problems of massage means in the term of making massage more effective. During the four weeks, they had application of classical massage of the back. During the first week, massage was done just with the suds, during the second week it was done with classical massage emulsion (white), during the third week we applied Allga San® mountain pine oil and during the fourth week we used Allga San mobile fluid during the classical massage. When a given therapy was done, we gave questionnaire to the respondents. Questions in the questionnaire were closed. Questionnaire was anonymous and voluntary. There was 100% return of the questionnaires. Search was done during the period from February to April 2012. Results were processed by analysis with expression of multitude in particular items.

## **4 Results**

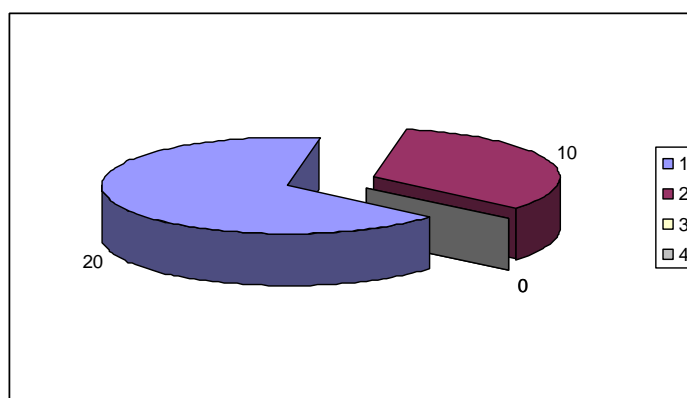
The first question concerned the gender of respondents. Two-thirds of tested group were women (n=20, figure 1).

Next question included respondents' views on the effect of used preparations. We found no negative response to the use of Allga San® mountain pine oil and Allga San® mobile fluid (figure 2).



**Legend:** 1 – male, 2 - female

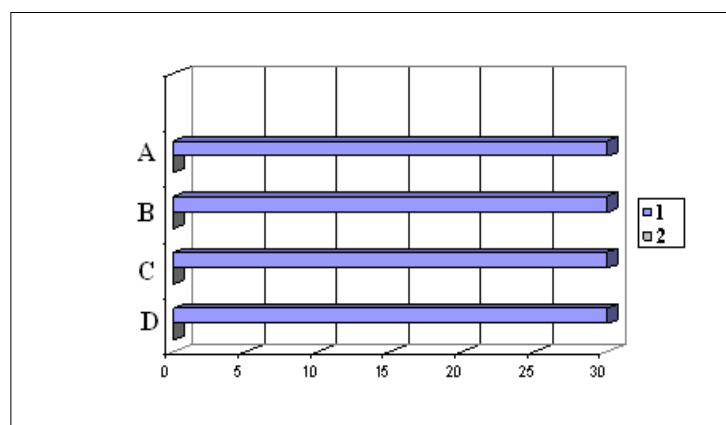
**Fig. 1** Gender structure of the respondents groups



**Legend:** 1- suds, 2- massage emulsion (white), 3- Allga San® mountain pine oil, 4- Allga San® mobile fluid

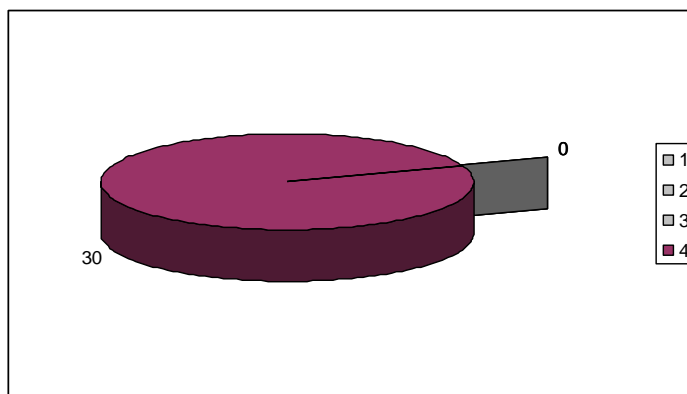
**Fig. 2** Which emulsion did not have any effects to respondents

Questions 3 – 5 related to a specific effect on patients. No emulsion had cooling effect (figure 3), warming effect was observed only in Allga San® mobile fluid (figure 4) but anti-pain effect had both preparations of Allga San® (figure 5).



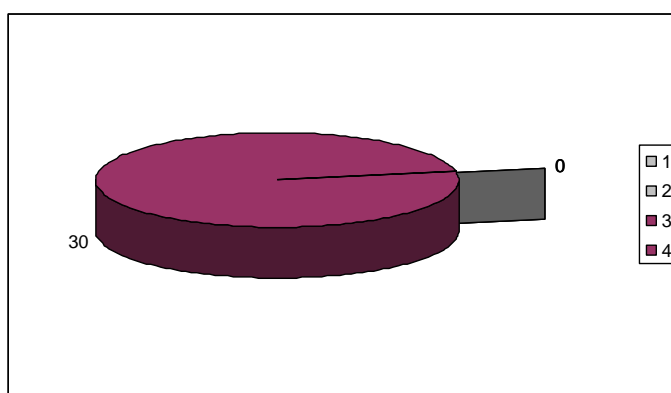
**Legend:** 1- no, 2- yes, A- suds, B- massage emulsion (white), C- Allga San® mountain pine oil, D- Allga San® mobile fluid

**Fig. 3** Cooling effect of used emulsions to respondents



**Legend:** 1- suds, 2- massage emulsion (white), 3- Allga San® mountain pine oil, 4- Allga San® mobile fluid

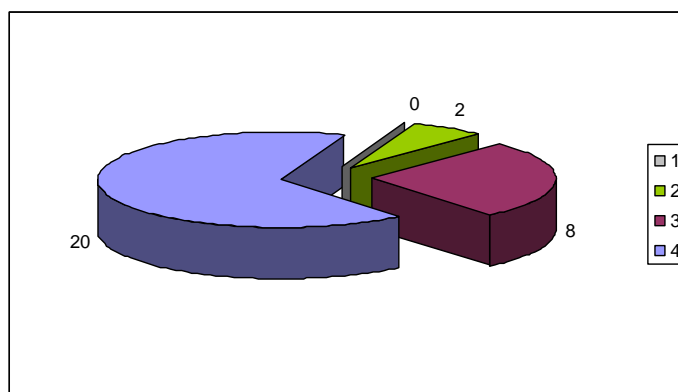
**Fig. 4** Warming effect of used emulsions to respondents



**Legend:** 1- suds, 2- massage emulsion (white), 3- Allga San® mountain pine oil, 4- Allga San® mobile fluid

**Fig. 5** Anti-pain effect of used emulsions to respondents

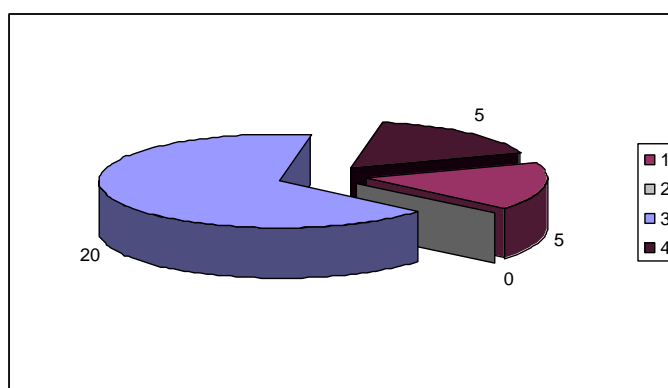
Figure 6 shows the results of long-time effect testing of used emulsions. Two-thirds of respondents indicated the Allga San® mobile fluid as the most effective preparation (n=20). Allga San® mountain pine oil followed with 8 respondents. No respondent noticed long-time effect of suds.



**Legend:** 1- suds, 2- massage emulsion (white), 3- Allga San® mountain pine oil, 4- Allga San® mobile fluid

**Fig. 6** Long-time effect of massage with used emulsions

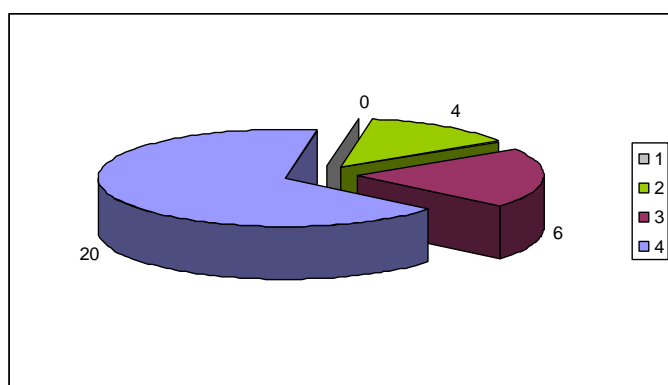
The observed absorption rate during the massage was once again the highest in the case of Allga San® mobile fluid (n=20; figure 7). However, the efficacy of the Allga San® mountain pine oil and suds was of the same range (both preparations n=5).



**Legend:** 1- suds, 2- massage emulsion (white), 3- Allga San® mountain pine oil, 4- Allga San® mobile fluid

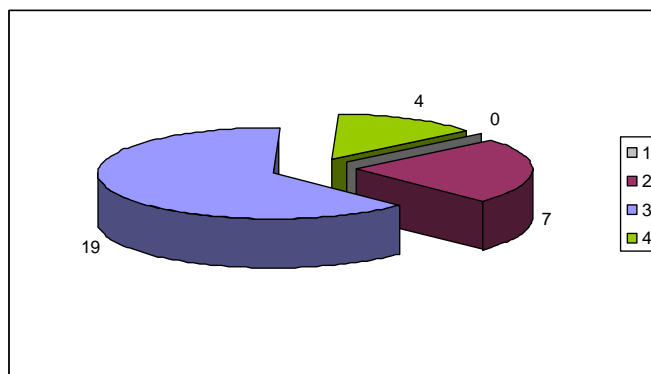
**Fig. 7** The absorption rate of used emulsions during the massage

As we can see in figure 8, respondents preferred Allga San® mobile fluid for applying during the classical massage (n=20). Within the fourth therapy week was the most common time period needed to feeling warm equal to 10 minutes (figure 9). Almost all respondents highly appreciate the contribution of emulsion to the quality of classical massage (n=28, figure 10).



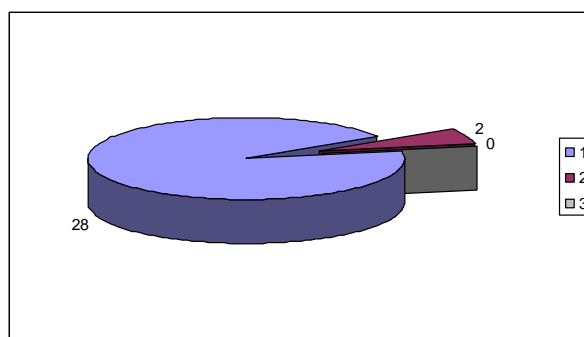
**Legend:** 1- suds, 2- massage emulsion (white), 3- Allga San® mountain pine oil, 4- Allga San® mobile fluid

**Fig. 8** Preference of emulsions for applying during the classical massage



**Legend:** 1/- 2 minutes, 2/- 5 minutes, 3/- 10 minutes, 4/- 30 minutes

**Fig. 9** Time period needed to feeling warm within the fourth therapy week



**Legend:** 1- yes, 2- no, 3- I do not know

**Fig. 10** Contribution of emulsion to the quality of classical massage

## 5 Discussion

After the application of four massage complements during the whole treatment of vertebrogenous algic syndrome made by massage, we distributed questionnaire, where we were finding effect of complements to the organism of client. By the valuation of questionnaire from respondents, we found these conclusions:

According to the respondents, suds and white massage emulsion do not have, from the therapeutic point of view, any expressive effect to make classical massage more effective. On the contrary, Allga San® products, from the therapeutic point of view, made classical massage more effective. In our view, this fact is cause by the composition of ingredients, which are part of these components.

From the four partially applied samples during the therapy, positive thermic effect was mentioned by massaged persons after the classical massage with complement with name Allga San® mobile fluid. Thermic effect begins with a delay of 10 minutes. Therefore, therapists should be very cautious about using of this preparation during and after the classical massage. On the contrary, negative thermic effect was not mentioned by respondents neither in one sample during or after therapy of classical massage. More expressive anti-pain effect, which increased effectiveness of the classical massage, respondents mentioned in the questionnaire, from the used samples, complements of Allga San®. As the most effective complement was mentioned Allga San® mobile fluid. Majority of massaged persons, which filled the questionnaire, think that massage complements expressively make classical massage more effective.

## 6 Conclusion

Many emulsions are used during the therapy of classical massage. These massage complements can have various effects and on their base they make effects of classical massage to the human organism more effective. Allga San® products are high-class complements of the classical massage and they have good healing effects, which increase effect of classical massage. Allga San® mobile fluid has also warm effects, which are expressed during the end or shortly after the massage. Therefore, it is needed to be cautious about quantization during the massage. Also, it is necessary to take care of preparation has to stand away the contact with eye. Preparation is free-saleable in the pharmacies.

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